COMPARATIVE ANALYSIS OF THE KEY FOREIGN DIRECT INVESTMENT DETERMINANTS IN AFRICAN COUNTRIES

by

Vincent Muziwakhile Mbongeleni Moloi

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Supervisor: Professor Kunofiwa Tsaurai

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ABSTRACT

This study attempts to analyse the key FDI determinants in African countries using annual data for the period from 2003 to 2015. It firstly, gives the introduction and the background of FDI. Secondly, it provides both theoretical and empirical literature review on the key FDI determinants. Based on the literature review, the pre-estimation diagnostics (correlation analysis, descriptive statistics and mean and overall mean analysis), panel root tests, panel co-integration tests, main data analysis (fixed effects, random effects, pooled OLS, fully modified OLS and dynamic GMM) and robustness tests using the lagged variable approach were conducted to analyse the key FDI variables. Main data analysis indicated that the lag of FDI had a significant positive impact on FDI.

The empirical results revealed that human capital development, infrastructure, growth rate, trade openness, natural resources, financial development, unemployment, exchange rate, government final consumption expenditure and population are the key FDI determinants in African countries. The robustness tests using the lagged variable approach were estimated to analyse if there is a causal relationship FDI and other variables such GDP, random effects revealed that there is uni-directional causality from GDP growth to FDI. Additionally, FDI was found to have been negatively but non-significantly affected by economic growth under the pooled OLS.

Keywords: Foreign Direct Investment; Financial Development and Human Capital development.

ABSTRAK

Hierdie studie poog om die sleuteleterminante van buitelandse direkte investering (BDI) in Afrikalande te ontleed deur gebruikmaking van jaarlikse data vir die tydperk 2003 tot 2015. Eerstens stel dit BDI bekend en verskaf ’n agtergrond daarvoor. Tweedens bied dit sowel ’n teoretiese as empiriese literatuuroorsig van die belangrikste BDI-determinante. Op grond van die literatuuroorsig is die volgende uitgevoer om die belangrikste BDI-veranderlikes te ontleed: voorskattingsdiagnostiek (korrelasieontleding, beskrywende statistiek en ontleding van gemiddelde en algehele gemiddelde), paneelworteltoetse, paneelkoïntegrasietoetse, hoofdataontleding (vaste effekte, ewekansige effekte, saamgevoegde gewone kleinste kwadrate [GKK], volledig gewysigde GKK en dinamiese veralgemeende momentemetode [VMM]) en robuustheidstoetse deur gebruikmaking van die gesloerdeveranderlike-benadering. Hoofdataontleding het aangedui dat die naloop van BDI ’n beduidende positiewe uitwerking op BDI het.

Die empiriese resultate het aan die lig gebring dat mensekapitaalontwikkeling, infrastruktuur, groeikoers, handelstoegang, natuurlike hulpbronne, finansiële ontwikkeling, werkloosheid, wisselkoers, die staat se finale verbruiksbesteding en bevolking die belangrikste BDI-determinante in Afrikalande is. Die robuustheidstoetse deur gebruikmaking van die gesloerdeveranderlike-benadering het ten doel gehad om te ontleed of ’n kousale verband tussen BDI en ander veranderlikes soos BBP bestaan. Ewekansige effekte het getoon dat daar eenrigtingkousaliteit van BBP-groei na BDI is. Daarbenewens is bevind dat BDI negatief maar niebeduidend geraak is deur ekonomiese groei ingevolge die saamgevoegde GKK.

Sleutelwoorde: buitelandse direkte investering; finansiële ontwikkeling en mensekapitaalontwikkeling

ISIFINYEZO ESIQUKETHE UMONGO WOCWANINGO

Lolu cwaningo luzama ukuhlaziya izinto ezinquma ngotshalo-mali lwamanye amazwe oluqonde ngqo olwaziwa ngokuthi yi-foreign direct investment (FDI) emazweni ase-Afrika ngokusebenzisa idata yonyaka yesikhathi sokusukela ngo 2003 ukuya ku 2015. Okokuqala, lwethula nokuhllinzeka ngesendlalelo nge-FDI. Okwesibili, luhlinzeka ngokubuyekeza imibhalo yethiyori kanye nobufakazi ngezinto ezibalulekile ezinquma nge-FDI. Ngokulandela imibhalo ebuyekeziwe, isilinganiso sokubonwa kwezimbangela okwaziwa nge-pre-estimation diagnostics (correlation analysis, descriptive statistics kanye ne-mean ne-overall mean analysis), uhlolo lwe-panel root tests, uhlolo lwe-panel cointegration tests, kanye nohlaziyo lwe-main data analysis (fixed effects, random effects, i-pooled ordinary least squares [OLS], i-fully modified OLS kanye ne-dynamic generalised method of moments [GMM]. kanye nohlolo olujulile ngokusebenzisa inqubo ye-lagged variable approach kwaqhutshwa ukuhlaziya izinto ezibalulekile ezinquma ngama-FDI variables. Uhlaziyo lwe-data enkulu lukhombise ukusalela emuva kwe-FDI kube nomphumela omuhle kwi-FDI.

Imiphumela yobufakazi bocwaningo ikhombise ukuthi ukuthuthuka kwabantu, ingqalasizinda, izinga lokukhula komnotho, ukuvuleka kwezokuhwebelana, imithombo yemvelo, intuthuko yezezimali, ukusweleka kwemisebenzi, izinga lokushintshiselana ngezimali, izindleko zokusebenzisa izinto kukahulumeni, kanye nesizwe sonkana, yizinto ezinkulu ezinquma nge-FDK kumazwe ase-Afrika. Uhlolo olujulile olusebenzisa inqubo ye-lagged variable approach lwalinganiselwa ukuhlaziya ukuthi ngabe bukhona ubuhlobo bembangela yobuhlobo obukhona phakathi kwe-FDI kanye namanye ama-variable afana nawe-GDP. Imiphumela engahlelekile ye-random effects ikhombise ukuthi kukhona uhidehide lwembangela phakathi kokukhula kwe-GDP kanye ne-FDI. Nangaphezu kwalokho, i-FDI itholakale ichaphazeleka kabi kodwa ngokungabalulekile kakhulu ngokukhula komnotho ngaphansi kwe-pooled OLS.

Amagama abalulekile: ukufakwa kwezimali zangaphandle kwelinye izwe ngokuqonde ngqo (foreign direct investment), intuthuko kwezezimali (financial development), kanye nentuthuko yabantu (human capital development)

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DEDICATION

I dedicate this thesis to the Almighty God and his son the Lord Jesus Christ to give me strength when I begin this draining journey. My family who supported me and encouraged me to focus on this study and work hard to achieve this qualification. Without them I wouldn't achieve this.

DECLARATION

STUDENT NO: 3386-086-6

I, Vincent Muziwakhile Mbongeleni Moloi**,** declare that **"*COMPARATIVE ANALYSIS OF THE KEY FOREIGN DIRECT INVESTMENT DETERMINANTS IN AFRICAN COUNTRIES"*** is my own work and that all the sources I have used or quoted have been indicated and acknowledged by means of a complete list of references.

Signed: VMM MOLOI DATE: October 2018

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CHAPTER 1: INTRODUCTORY CHAPTER

1.1 INTRODUCTION AND BACKGROUND

Foreign Direct Investment (FDI) is a crucial element of both private and public capital that cannot be underestimated, particularly in developing countries (Reiter & Steensma, 2010:1678). This is acknowledged by a large number of academic researchers who have directed their attention on this topic, such as those by Jadhav (2012), Delgado, McCloud and Kumbhakar (2014), Stoian and Mohr (2016) and Dupasquier and Osakwe (2006). There are two main aspects to the importance of FDI globally: firstly, its world capital flow shares and secondly its positive impact on host countries' economies. The role of FDI is significant in Africa given the fact that the rate of poverty is generally high while domestic savings and income remain low as income is mainly directed to consumption expenditure.

In most host countries, the contribution of FDI remains significant in developing their economy (Adams, 2009:178). Indeed, the augmentation of domestic capital and the enhancement of efficiency are two mains ways in which FDI may operate (Adams, 2009:178). These two methods include the transfer of new technology, marketing and managerial skills, innovation and best practices. Secondly, FDI has both benefits and costs and its impact is determined by the country-specific conditions in general and the policy environment in particular. This includes the ability to diversify, the level of absorption capacity, targeting of FDI, and opportunities for linkages between FDI and domestic investment especially in the case of organisations' fusions and acquisitions.

Numerous studies have been conducted to identify FDI determinants but no definitive conclusions have been reached and there is no recognised set of explanatory variables that can be considered as the true key FDI determinants (Kok & Ersoy, 2009:105). This study attempted to analyse and identify the crucial empirical findings on the key determinants of FDI according to FDI theories. One of the most important questions about FDI determinants today is whether a country has positive determinants such as economic, institutional and political determinants to attract foreign direct investment

(Jadhav, 2012:5). Jadhav (2012:6) suggests that FDI determinants dynamics have brought several arguments about positive interaction and complementarity between FDI and growth to the forefront of academic debates. Hence, there is need to provide deeper insight into key FDI determinants, particularly in the context of African countries.

Several empirical studies have investigated FDI determinants but none of them have analysed FDI determinants using a sample of countries which truly represents the African continent as a whole. This suggests differences in the analysis of FDI determinants in African countries; this research study seeks to provide deeper insights in this regard. Evidence from cross-country heterogeneity in sub-Saharan Africa (SSA) reveals that interest in Africa as an investment destination still exists, particularly for primary sector industries, where mining, quarrying and petroleum make up 60% of investments and agriculture the balance (UNCTAD, 1999b, 2005; Luiz & Charalambous, 2009:306). However, FDI analysis in African countries has been excluded from many FDI determinant studies (Luiz & Charalambous, 2009:306).

Asiedu (2002:107) stresses that the past decade has witnessed a dramatic increase in FDI in developing countries, with FDI increasing from $24 billion (24% of total foreign investment) in 1990 to $178 billion (61% of total foreign investment) in 2000 (World Bank, 2001). This is supported by Mahembe and Odhiambo (2014:7). However, the poorest region, Africa, has not benefitted from the FDI boom, despite efforts to attract more foreign investment (Asiedu, 2002:107). The question of how to attract FDI to Africa is one of the most researched topics and yet policy makers in capital-starved countries do not yet agree on the common determinants of FDI in an African context (Moosa & Cardak, 2006:200). In an effort to map out the current progress of FDI theory, Popovici and Calin (2014:5) posed the question: “why do foreign investors choose one location at the expense of another?” It is in this context that the current study analyses the determinants of FDI in Africa.

1.2 PROBLEM STATEMENT

The interplay of FDI developments has been known to promote corporate global profits and to cause higher stock prices, which elevates the value of cross-border mergers and acquisitions (Groh & Wich, 2012:210). Delgado et al., 2014:298, contend that a developing host country with large multinational corporations promotes FDI through advanced technology, good management practices and research and development. Tsai (1994:137) points out that the key FDI factors such as domestic market size, trade balance, labour costs and economic growth are crucial determinants of FDI. Jadhav (2012:5) concurs, going further and suggesting that factors such as market size, trade openness, natural resources as economic determinants, inflation rate and political stability are important in understanding the key impact of FDI development on growth. On the other hand, Donaubauer, Meyer and Nunnenkamp (2016:234) found that higher FDI inflow into the host countries of FDI is not always linked to higher economic growth as a determinant of FDI at conventional levels of statistical significance.

In sub-Saharan Africa, FDI development has become an increasingly crucial source of capital (Asiedu, 2002). Asiedu (2002:107) observes that to supplement domestic savings in order to spur investment, external capital is needed. The African continent has recorded low FDI inflow levels (Dupasquier & Osakwe, 2006:241). Factors such as political and macroeconomic instability, low growth, weak infrastructure, poor governance, inhospitable regulatory environments and ill-conceived investment promotion strategies have been identified as being responsible for the poor record of FDI on the African continent (Dupasquier & Osakwe, 2006:241).

It is quite evident in the related literature that there is no consensus on the factors that determine FDI inflow into the African continent despite FDI being the major source of employment creation, poverty reduction and economic growth and development. Findings regarding the determinants of FDI in Africa are diverse, mixed and divergent. In other words, there is still no common list of macroeconomic variables that determines FDI into the host country, not only in Africa but also across the entire globe. Even existing empirical studies that have investigated the determinants of FDI in Africa (Onyeiwu & Shrestha, 2004; Anyanwu, 2011; Rodriguez-Pose & Cols, 2017; Majavu &

Kapingura, 2016; Olatunji & Shahid, 2015) have ignored the dynamic nature of FDI data and the endogeneity problem that often arises as a result of the existence of a bi-directional causality between FDI and its determinants. The dynamic attribute of FDI data has been explained by Walsh and Yu (2010), who argue that already established foreign investors attract new investors by enabling them to enjoy the positive spillover advantages the former have created. Fox, Negrete-Yankelevich and Sosa (2015) argue that FDI and some of its determinants influence each other, thereby affecting the overall quality of the results. Such a problem is referred to as an endogeneity issue.

Empirical studies by Sichei and Kinyondo (2012), Nkoa (2018) and Kariuki (2015) have addressed the dynamic nature of FDI data but have ignored the fact that it takes time for the independent macro-economic variables to influence FDI, as argued by Matthew and Johnson (2014). Moreover, Tsaurai (2018a) found out that complementarity between (1) human capital development and stock market value traded and (2) human capital development and stock market capitalisation improved FDI into emerging markets. No study that the researcher is aware of has attempted to explore the impact of a combination of human capital development and financial development on FDI in an African context: the current study is thus the first of its kind to conduct such an investigation.

1.3 OBJECTIVES OF THE STUDY

The main objective of this study was to determine empirically the key determinants of FDI in African countries. The following specific objectives that were predicted to be the major driving factors in the study:

i) To conduct a trend analysis of FDI and its determinants identified in the literature in the period 2003 to 2015.
ii) To investigate the determinants of FDI in African countries.
iii) To explore empirically the impact of a complementarity between financial development and human capital development on FDI in an African context.

1.4 JUSTIFICATION OF THE STUDY

The importance of FDI inflows cannot be underestimated as it is one of the main factors behind economic growth and development given the generally low domestic savings and income in African and emerging countries. Earlier studies on FDI contend that its recent rise in Latin American countries is not a sign of strength, but rather an indication that local markets are not working properly (Hausmann & Fernandez-Arias, 2001; Azman-Saini, Baharumshah & Law, 2010:1080). Therefore, there is a need for studies that analyse FDI determinants for African countries. This study was intended to make a meaningful contribution to the understanding of the extent to which macro-economic factors in African countries have positively and significantly influenced FDI inflows.

It was hoped that this research study would contribute to literature by aligning FDI theories with practice by providing valuable and deeper insights into the key FDI determinants of not only African but all developing countries. This was to be achieved by analysing the various key aspects of FDI determinants and their relation to an array of factors such as market size, trade openness, natural resources, macroeconomic stability, political stability, government effectiveness, regulatory quality, control of corruption, voice and accountability, rule of law, political and macroeconomic instability, low growth, weak infrastructure, poor governance, inhospitable regulatory environments and ill-conceived investment promotion strategies. This would assist future researchers in advancing or amending existing theories. It was hoped that the findings would provide information to foreign direct investors and policy makers on the positive and negative determinants of FDI in African countries.

It was hoped that this research study would contribute to the literature on FDI determinants by establishing whether FDI developments have an impact in African countries and revealing the direction of causality as well as the magnitude of this positive impact, in this way adding to theoretical and empirical views in this discipline. Evidence from empirical studies in sub-Saharan Africa (SSA) has revealed that the positive impact of FDI developments has improved the availability of financing investments and, consequently, reduced investment volatility (Brafu-Insaidoo & Biekpe, 2011: 227).

Since FDI is an important source of financial development for African countries, the aim of this study was to identify and analyse the variables that host countries should focus on in order to attract greater FDI inflows. Previous studies such as those by Wisniewski and Pathan (2014), Iamsiraroj (2016) and Vijayakumar, Sridharan and Rao (2010) have not found full drivers that affect FDI inflows; for example, they did not take the effects of financial development into consideration.

1.5 DEFINITION OF KEY TERMS

The main terms that are used in this study are defined hereunder.

1.5.1 Foreign Direct Investment

FDI is the main term that should be defined from the outset. Bayraktar (2013:87) defines FDI as an investment made to acquire lasting interests in enterprises operating outside the economy of the investor. Net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor is the definition that was proposed by the World Bank (2013). This definition of FDI is the one that was used in the current study.

Tsaurai (2017) defined FDI as a group of foreign investment that reveals the purpose of a resident in one economy which is the direct investor attaining a lasting interest in an enterprise resident in another economy which is the direct investment enterprise. The same thesis witnessed that direct investment encompasses not only the initial transaction instituting the FDI relationship between the direct investor and the direct investment enterprise but all successive capital transactions between them and among affiliated enterprises resident in different economies.

1.5.2 Financial Development

According to Gregorio & Guidotti (1995), the term financial development is a wide-ranging concept that also involves financial innovation, financial intermediation and financial sector that happens outside the banking system. Tsaurai (2017:14) defined financial market as where financial instruments which include bonds, shares, treasury

bills, negotiable certificates of deposits and bankers acceptances are traded. The Author went further in a broader term to define the financial market as an organisation that simplifies the purchasing and retailing of financial assets.

1.5.3 Human Capital Development

In the study of Marimuthu, Arokiasamy and Ismail (2009), human capital development has been defined as the crucial component in enhancing a firm assets and workforces in order to improve productive as well as withstand competitive advantage. Marimuthu et al (2009), refer to human capital as a progression that narrate to training, education and other professional initiatives in order to improve the level of knowledge, skills, abilities, values and social assets of employee which will lead to the employee gratification and performance. In conclusion, they defined the human capital development in summary as the knowledge, skills, competencies and attributes personified in individuals that simplifies the creation of personal, social and economic well-being (Marimuthu, et. al, 2009:266).

1.6 LIST OF ABBREVIATIONS

Table 1 provides the list of abbreviations for the current study.

Table 1 List of Abbreviations	
MNCs	Multinational Corporation
VFDI	Vertical Foreign Direct Investment
HFDI	Horizontal Foreign Direct Investment
MNEs	Multinational Enterprises
AMU	Arab Maghreb Union
ANOVA	Analysis of Variance
ASEAN	Association of South East Asian Nations
BRICS	Brazil, Russia, India, China and South Africa
CSA	Country Specific Advantage
EG	Economic Geography
US	United States

OLI	Ownership, Location and Internalisation
KC	Knowledge Capital
FSA	Firm Specific Advantage
UK	United Kingdom
OECD	Organization for Economic Cooperation and Development
RBI	Reserve Bank of India
REER	Real Effective Exchange Rate
MENA	Middle East and North Africa
WB	World Bank
MINT	Mexico, Indonesia, Nigeria and Turkey
GDP	Gross Domestic Product
UNCTAD	United Nation Conference on Trade and Development
EIU	Economist Intelligence Unit
PIT	Personal Income Tax
BRIC	Brazil, Russia, India and China
SSA	Sub-Saharan Africa
ROC	Return on Capital
CEEC	Central and Eastern European Countries
EU	European Union
OLS	Ordinary Least Squares
CEE	Central and Eastern Europe
SADC	South African Development Community
CPI	Consumer Price Index
IMF	International Monetary Fund
SDI	Spatial Development Initiatives
VECM	Vector Error Correction Model
FDI	Foreign Direct Investment

Source: Author compilation

1.7 CHAPTER SUMMARY

The purpose of this chapter was to provide an overview of the background, problem statement and objectives of the study. The three objectives of the study were: (1) to conduct a trend analysis of FDI and its determinants as identified in the literature (2003–2015), (2) to investigate the determinants of FDI in Africa and (3) to establish whether complementarity between financial development and human capital development affected FDI in Africa. It became clear from the literature review that the third objective of the current study in the African context had not been investigated before. The chapter concluded by providing an overview of the chapters making up the remainder of the dissertation. The following chapter reviews relevant literature on the determinants of FDI.

1.8 SUMMARY OF CHAPTERS

The study is organised into the following five chapters.

1.8.1 Chapter 1: Introduction

The first chapter introduces the study by providing the introduction and background, problem statement, objectives of the study, justification of the study, definition of key terms, list of abbreviations and structure of the whole thesis.

1.8.2 Chapter 2: Literature review

This chapter offers a deeper insight on the theoretical and empirical views regarding the determinants of FDI. Two main aspects dominate this chapter, namely (1) theoretical literature and (2) empirical literature on the determinants of FDI. The impact of FDI, types of FDI and modes of FDI literature are also briefly discussed.

1.8.3 Chapter 3: Research methodology

This chapter focuses on the variables, the FDI function and estimation techniques. Specifications of the model that was used to test the hypothesis of the study against the outlined objectives are discussed in this chapter. The research design is also presented in this chapter.

1.8.4 Chapter 4: Data analysis and synthesis of results

This chapter deals with main data analysis using the fixed effects, fully modified ordinary least squares, random effects, pooled OLS and the dynamic generalised methods of moments (GMM). Robustness tests using the lagged independent variable approach are also discussed in this chapter. Research findings are discussed and synthesized with theory and findings of other empirical studies.

1.8.5 Chapter 5: Conclusion, recommendations and suggestions for further study

This is the last chapter of the dissertation and it summarises the research findings and discusses the contributions of the study. Conclusions, recommendations, limitations of the study and suggestions for future research constitute the remainder of the chapter.

CHAPTER 2: LITERATURE REVIEW

2.1 CHAPTER INTRODUCTION

The main purpose of this chapter is to provide a theoretical and empirical perspective of the determinants of foreign direct investments (FDI). The reasons multinational enterprises (MNEs) invest abroad are discussed and the types and the methods of FDI are distinguished. An in-depth discussion of the impact of FDI determinants is also provided. Section 2.2 provides the reasons multinational enterprises invest abroad. Section 2.3 discusses the methods of FDI and section 2.4 discusses the types of FDI. Section 2.5 provides the relevant theories of FDI while section 2.6 discusses the empirical literature and its findings on FDI determinants. Section 2.7 comprises a summary in tabular form of FDI determinants. Section 2.8 concludes to the chapter.

2.2 REASONS FOR MULTINATIONAL ENTERPRISES INVESTING ABROAD

Faeth (2009) argues that there are four reasons for multinational enterprises (MNEs) investing abroad, namely market, resources, efficiency and strategic assets seeking.

Franco, Rentocchin and Marzetti (2008) believe that market-seeking factors such as market size, market growth and structure of the domestic market encourage the penetration of the domestic market of host countries and investment abroad for profit making. The purpose of resource seeking is to acquire natural resources, physical resources and labour resources not available in the home country with the possibility of cheaper inputs in a certain location (Faeth, 2009). Resource seeking and market seeking are typically initial investments while efficiency seeking and strategic asset seeking are typically sequential investments (Faeth, 2009).

Meyer (2005) argues that efficiency seeking is aimed at places where labour is cheap and the cost efficiency advantage of production scale of economies is taken into consideration. Efficient market seeking uses lower cost production sites to serve global markets (Meyer, 2005). Strategic assets may be tangible or intangible. Strategic asset seeking is defined as the acquisition of assets such as technologies and overseas brands with the purpose of competing not only in the host country but also globally

(Meyer, 200:325). Dunning (1998) argues that strategic assets include the availability of knowledge related assets and markets essential to protect or improve ownership-specific advantages of investing firms at the right price.

2.3 METHODS OF FOREIGN DIRECT INVESTMENT

There are four methods of foreign direct investment namely cross-border mergers and acquisitions (M&A), exporting strategy, greenfield investment and joint ventures.

Currently, in order to pursue profit maximisation globally as a firm strategy for foreign market operations, the firm must select M&A to expand its operations (Nagano, 2013). In addition to the asymmetric technology transfer of two entry modes (M&A and greenfield investment), M&A is favoured by MNEs when the strategies' effects are considered (Kim, 2009). Raff, Ryan and Stahler (2009) observe that if the fixed cost of greenfield investment is fairly high, MNEs prefer a merger to greenfield investment. Cross-border acquisition allows a firm to obtain expensive entry to the country-specific capabilities of the acquired firm. Thus, the demand and supply of the firms in the market for the corporate control the price of an acquisition (Nocke & Yeaple, 2007). The M&A have a direct effect on the nature of firms producing in a country and so influence aggregate industry efficiency (Nocke & Yeaple, 2007:338).

If exporting is a credible threat, the MNE will prefer a joint venture to a merger (Raff et al., 2009). For sufficiently low levels of trade, cost exporting is preferred to a merger (Raff et al., 2009:9). Export allows the firm to internationalise without making huge investments (Gilroy & Lukas, 2006). A low resource commitment in addition to a lower risk profile typifies export (Gilroy & Lukas, 2006:453). Nocke and Yeaple (2007) argue that firms can access international markets through exports. Exporting involves lower sunk costs but higher per unit costs (Helpman, Melitz & Yeaple, 2004). The sunk costs of exporting involve fixed costs of research into product compliance, distribution networks and advertising (Helpman et al., 2004:197).

Kim (2009) explains greenfield investment as a welfare dominant FDI entry method for the host country. Through greenfield FDI, the firm avoids the risk of extraction that is

otherwise associated with cross-border M&A (Nagano, 2013). Raff et al. (2009) argue that greenfield investment not only influences the choice of entry mode directly but also indirectly as it determines the outside option of potential acquisition targets and joint venture partners. Greenfield investment is preferred by US firms if the market size is large, if they are targeting a developing country and have previous foreign experience (Gilroy & Lukas, 2006). An industry engaging in greenfield FDI brings its own capabilities to work internationally (Nocke & Yeaple, 2007). Muller (2007) believes that if the domestic competitor possesses inferior technology, greenfield investment is the optimal entry method.

Domestic firms and the MNEs prefer a joint venture to a merger if greenfield investment is a viable option and other FDI methods involve lower fixed costs (Raff et al., 2009). A joint venture occurs when two or more firms pool a portion of their resources in a common legal organisation (Kogut, 1988). Joint ventures are favoured when the potential target and the acquirer belong to different firms (Hennart & Reddy, 1997). Organisations enter into joint ventures to share the risk with their partners (Hennart & Reddy, 1997:3). In the case of joint ventures, the market structure is fixed as all organisations remain independent (Raff et al., 2009). The acceptance of a joint venture by the domestic firm depends on the credibility of greenfield investment (Raff et al., 2009:5).

2.4 TYPES OF FOREIGN DIRECT INVESTMENT

Beugelsdijk, Smeets and Zwinkels (2008) mention five types of FDI: horizontal, vertical, export platform, support and passive FDI.

Horizontal FDI (HFDI) involves growing the production of products similar to those produced in the home country and in the host country (Beugelsdijk et al., 2008). This creates larger spillover effects because of the knowledge capital in the domestic economy. Vertical FDI (VFDI) is associated with MNEs' need to perform unskilled labour-intensive production activities in the specific regions that have abundant unskilled labour (Beugelsdijk et al., 2008:454). Export platform FDI comprises those processes in the host country recognised by investing firms as determinations of

exporting products to countries other than the host country itself (Dunning & Lundan, 2008). Export platform FDI simplifies the analysis to a single product firm. When there are no vertical motives for FDI, the country inside the free trade area always has the incentive to undertake export platform FDI (Greenaway and Kneller, 2007).

Dunning (1993) explains that support FDI occurs when associates undertake investment abroad to support inputs and/or outputs of the multinational corporation (MNC's) production activity by facilitating distribution channels or providing intermediate goods at a lower cost. Passive FDI is defined as an investment undertaken for the purposes of gaining benefits from capital appreciation rather than by having an influential role in management through owning new assets (Dunning, 1993). Passive FDI may occur where individuals in the real estate sector hope for a future increase in asset values. Passive FDI is not associated with the modern concept of FDI in terms of influence and control; rather, it is related to the concept of portfolio investment (Dunning & Lundan, 2008:73).

2.5 THEORIES OF FOREIGN DIRECT INVESTMENT

This section discusses various theories of FDI, namely production cycle, internalisation, market imperfection, new trade, horizontal, vertical, knowledge capital, new economic geography, institutional FDI, firm specific advantage (FSA) and country specific advantage (CSA), industrial organisational approach, currency area, market size, portfolio theory, concentration ratio, eclectic paradigm, oligopolistic reaction, output and market size, different rates of return and the liquidity theory.

The production cycle theory explains FDI flow and was developed by Vernon (1966). This theory was most relevant to US companies in Western Europe after the Second World War, during a time of enlightenment and technology. It was interpreted as an accumulation of export in the manufacturing industry. Vernon argued that employment, endowments with natural fuels, economies of scale, transportation, labour costs, exports, advanced new technology and tax reduction positively and significantly influenced FDI inflows in America. The theory was most applicable to international trade and its importance has been acknowledged by scholars such as Denisia (2010) and

Jadhav (2012). Some scholars observe that this theory was the first effort to explain FDI and MNC activities through the interaction of technology, FDI and trade.

Denisia (2010:55) believes that there are four stages that are applicable to FDI inflows: the innovation stage, the growth stage, the maturity stage and the decline stage. In the first stage, manufacturers have the advantage by possessing new technologies; as the product develops so the technology becomes popular. In the second stage, the product is exported to other countries that are similar to the home country. In the third stage, the product is normalised as the production costs have become a significant component. In the last stage, manufacturing firms will begin to lose advantage as other organisations imitate the innovation. Throughout these stages, technology transfer takes place; consequently, exporters become importers. Firms first produce for the home country then export the product after maturity and they start to function where cost of production is low.

The Internalisation theory developed from the efforts of Buckley and Casson (1976). According to this theory, in order to retain the conventional assumption of profit maximizing, firms must maintain the assumption of the imperfect market (Williams, 1997:74). When an organisation requires input from other merchants for its production, it internalises the merchant in order to reduce transaction costs. A growing body of literature has investigated the internalisation theory, known as a theory of the boundaries of the firm. Recent evidence suggests that the boundaries of a firm will be set at the margin where the benefits of bringing further activity into the firm are just offset by the cost involved (Casson, Dark & Gulamhussen, 2009).

The internalisation theory found that political stability, imports and exports, economic geography, emerging multinational enterprises, global factor development, natural resources and exchange rate positively and significantly influenced FDI inflows, while low levels of technology influenced FDI negatively. Internalisation is not determined by a particular firm but rather by an industry, which in addition can draw resources away from other industries at a constant opportunity cost that varies according to the nature of the resource and the location from which it is procured (Buckley & Casson, 2011:493). This

theory holds that internalisation has positively demonstrated that transnational firms organise their internal activities in such a way as to develop specific advantages that can then be exploited (Denisia, 2010:56).

The market imperfection theory, developed by Kindleberger (1969), is based on the exchange rates in imperfect capital markets. This theory attempts to explain the existence FDI. In this theory, the risk of foreign exchange is analysed from the perspective of international trade. The theory of exchange rate on imperfect capital markets identifies the influence of uncertainty as a factor of FDI (Denisia, 2010:56). Market imperfection is described as any deviation from the conditions required for a flawless market (Jorgensen, Hafsi & Kiggundu, 1986). Jorgensen et al. (1986) point out the similarities in market imperfections between developing and developed countries. For instance, both developed and developing countries may have a buyer or seller concentration.

In market imperfection theory, access to capital markets, government intervention, economies of scale, product differentiation and new technologies positively and significantly influences FDI inflows. Popovici and Calin (2014:7) found four applicable types of imperfection that attracted FDI, namely imperfections in the goods market, which resulted in product differences and different marketing techniques. Secondly, imperfection in the factors market, which resulted in different access to the capital market and differences in management skills. Thirdly, government intervention caused distortions such as tariff and non-tariff barriers, taxes, price controls, profits and antitrust regulations. Lastly, economies of scale were a contributing factor to increased production efficiency. All these types of imperfection influenced FDI positively and significantly.

The new trade theory became a popular theory of classical trade in explaining real trade flows. Scale of returns, market imperfections, economies of scale, reduction of commercial costs, location, product differentiation, trade openness and market size all influence FDI significantly in new trade theory (Markusen & Venables, 1998:183). Product differentiation in open economies is a crucial source of trade with countries with

similar economies (Athanasoglou & Bardaka, 2010:217). The role of this theory in general is to identify the shortcomings of standard trade theory by facing some of the facts of trade in a more compound manner by involving a fuller range of factors. Popovici and Calin (2014:12) point out that the new trade theory classifies FDI as one of two types, horizontal or vertical FDI.

The horizontal FDI (HFDI) model developed by Markusen and Strand (2009) holds that a market with the growth potential to sell products is the main motivation for investors (Popovici & Calin, 2014:13). HFDI arose as a substitute for exporting and placing production close to customers to evade trade costs such as transportation costs and trade barriers (Beugesdijk et al. 2008: 454). Recent evidence suggests that HFDI are the most favoured type of investments for multinational enterprises investing in developing countries because of the great uncertainty that exists in these host countries (Popovici & Calin, 2014:126). HDFI in countries with less distributive impact may improve income. Determinants such as high uncertainty, transportation, trade barriers, market size, quality infrastructure and growth potential positively affect HFDI.

The vertical FDI (VFDI) theory traditionally defines FDI as vertical if it includes vertically integrated multinational enterprises (MNEs) where local affiliates trade with other parts of the firm (Braconier, Norback & Urban, 2005:447). The measure of VFDI illustrated in different countries has various endowments with production factors. VFDI may combine skilled and unskilled wages in different countries and change the income distribution in these countries. Recent evidence shows that VFDI has had weak support as the model contrasts sharply with its main competitor, the HFDI model. According to this model (VFDI), skilled and unskilled wages, lower corporate tax rates, lower labour costs, and low factor costs positively and significantly influence VFDI inflows while investment risk, volatility and sovereign risk negatively influences VFDI.

The knowledge capital (KC) model developed by Markusen and Strand (2009) combines the above two models. According to this model, knowledge is an asset that can be simply delivered to geographically separate production units which entails a highly skilled labour force and is highly movable (Popovici & Calin, 2014:14). This model

assumes the existence of two similar goods, two countries and two similar factors, unskilled labour and skilled labour, which are internationally immovable (Carr, Markusen & Maskus, 2001:693). Historically, weak or mixed evidence has been found for this model, mostly because of weak support for the vertical part of the model (Braconier et al., 2005:770). Determinants such as increases in skilled labour, lower commercial costs, technology transfer and complete liberalisation of trade and investment positively influence FDI in this model.

The theory of new economic geography (EG) became popular from 1991 when Krugman published his article. This theory is concerned only with the relation between intermediate producers and consumers. Traditionally, it has been noted that the theory demonstrates the impact and the role of clusters in a region from which to draw new companies and skilled labour forces as a result of manipulating scale of economies. There are two pillars to the theory, namely the elements designated the agglomeration forces and the elements designated the dispersion forces. According to the theory, increasing return of scale, transportation, technological externalities, market size, location, trade openness, skilled labour force, rise in market entry and production cost positively influence FDI inflows.

The institutional FDI fitness theory was developed by Saskia, Morgan and Witter (1998) when they found that little had been achieved from debating location factors. Traditionally, it has been suggested that the theory is the effect of competition between governments. The theory is more relevant to the Tanzanian and Ugandan regions as market, social, political, economic and financial factors determine FDI inflows in these two countries. According to this theory, looser policies, political stability, education system, socio-cultural framework, economic openness, low levels of intervention in trade and exchange rates, low corruption, transparency, total market size, per capita income, cheap labour cost positively and significantly influence FDI inflows.

The firm specific advantage (FSA) – country specific advantage (CSA) theory to explain FDI was developed by Rugman (1980). This theory compared the strong and weak points of a host country against another and a firm against a competitor. In this theory,

the behaviour of a firm selecting external market taking advantage of its specific advantage is favored (Popovici & Calin, 2014). Technological development, the knowledge level, marketing capacities and managerial abilities positively influence FDI in the FSA, while natural resources endowment, the quality of the labour market, institutional characteristics and public policies dedicated to an attractive business environment positively and significantly influence FDI inflows in the CSA.

The industrial organisational approach theory developed by Hymer in his doctoral dissertation in 1960 attempted to explain FDI flow. This theory has proved the most useful in explaining international production in an imperfect market framework. Researchers such as Cohen (1975), Lemfalussy (1961) and Kindleberger (1969) have endorsed this. This theory assumes that foreign firms operating abroad have to compete with domestic firms, irrespective of whether they are located in one country or in more than one country. Determinants such as culture, language, legal system, local government foreign exchange risk, brand names, patent, marketing and management skills, and economies of scale and cheaper sources of finance and consumer preferences significantly influence FDI inflows in this theory.

The currency areas theory proposed by Aliber (1970) was based on the geographical area in which economic efficiency would be enhanced by having an entire region sharing a single currency. The theory was based on the variations in currencies and fiscal regimes between countries (Letto-Gillies, 2007:200). The theory assumed that weaker currencies had a greater advantage in attracting FDI to take advantage of variations in the market capitalisation rate. Aliber (1970) attempted to explain FDI based on the relative strength of the respective currencies in the host and founding country (Nayak & Choudhury, 2014:11). The theory was more relevant to financial flows as a result of portfolio rather than direct investment.

Currency area theory has been unable to provide an explanation of investment between two developed regions with similar currency strength. Researchers such as Froot and Stein (1991) have endorsed this. The theory tested market capitalisation rates, heavily regulated foreign exchange rates, location and quality infrastructure as FDI

determinants and found that these positively and significantly influenced FDI in the United State (US), the United Kingdom (UK) and Canada. According to this theory, investment has drastically increased since the 1970s and even if FDI needs some movement of funds the theory must reason why the firms want to invest abroad. The theory is less favored to less developed countries with imperfect capital markets and with heavily regulated foreign exchanges.

The market size theory assumes that FDI is a positive function of the market size of the host country. This is measured by the country's GDP. Several empirical studies have supported the market size theory. Simel, Charles and Samuel (2017) observed that FDI flows in Kenyan regions correlated with their GDP. Rashid, Bakar and Razak (2017) concluded that market size was a major determinant of FDI inflow from 2003 to 2012, and Indopu and Talla (2017) found that the size of the market in the host country was likely to influence the FDI undertaken to produce imports rather than export products.

The portfolio theory developed by Markowitz in 1952 is based on the idea that risk-averse investors can construct portfolios to increase expected returns on an expected level of market risk, stressing that risk is an inherent higher incentive. The theory is one of the most significant theories that attempts to explain why countries exchange capital through FDI. This theory has been criticised because in a perfect capital market, industries need not diversify their portfolio globally to minimise risk for their shareholders. According to this theory, individual investors can openly diversify their individual portfolios. In its simplest form, the theory holds that a country will accept an FDI agreement in order to obtain international capital at an acceptable risk and rate of return.

The concentration ratio theory, formulated by Aliber (1970), assumes that profit and the numbers of firms in an industry are negatively correlated. The theory argues that domestic banks with greater concentration ratios are more advantageous in satisfying the capital needs of offshore growth. It suggests that the more profitable the banks, the higher the retained earnings. In this view, it is similar to the neo-classical comparative advantage theory that low costs of production of bank products provide essential but

insufficient conditions for high turnover. According to concentration ratio theory, there is weakness in the above view as international growth is not fully funded internally.

The eclectic paradigm developed by Dunning (1973) looks at three FDI drivers: ownership, location and internalisation (OLI). Ownership (O) refers to intangible assets that are – at least for a while – exclusive possesses of the company and may be transferred between transnational companies at low costs, leading either to higher income or reduced costs. Ownership (O) ensures that the country has a monopolistic advantage through technologies, branding and human capital and this positively and significantly influences FDI inflows. Location (L) is identified as a major contributing factor in determining who will become host countries for the activities of transnational corporations. Location (L) ensures that the country has a monopolistic advantage through political stability and infrastructure and positively and significantly influences FDI inflows.

Internalisation (I) applies when the first two conditions are met: the company must use this advantage to be profitable in relationships with at least some factors outside the country of origin. Internalisation offers a framework for assessing different ways in which a company can exploit its powers, from the sale of goods and services to various agreements between companies. Internalisation (I) ensures that the country has a monopolistic advantage through market share or profits, per capita income, growth of market and government incentives, which will in return ensure positive and significant FDI inflows into the host country. The significance of the eclectic paradigm originates from its effort to explain “why” firms invest abroad, “where” they should invest and “how” (Dunning, 1977, 1980 and 1993).

The oligopolistic reaction theory formulated by Knickerbocker (1973) is an FDI theory based on the idea that there are two significant reasons for selecting a specific country as a location for creating a new facility: firms seek increased access to the host country market and they want to employ the relatively scarce factors available in the country. It is one of the most important and influential FDI theories. This theory suggests that firms must invest in a country which match a competitor’s direction (Nayak & Choudhary,

2014). It is this theory that argues that firms in an industry tend to follow each other's decisions. This theory increases the level of concentration and decreases the product range. It holds true only when uncertainty exists about costs in the host country. Risk averse, certainty and incentive to go abroad negatively influence FDI.

The output and market size theory developed by Jorgenson (1963) is essential at a macro level and postulate a positive relationship between FDI of the firm and its output (sales). The theoretical models of output hypotheses are derived from neoclassical domestic investment theories while the market size hypothesis is not explicit about the assumptions and the objective function of the output and market size theoretical models; it is thus impossible to say that they have a similar theoretical background to the output hypothesis. Several studies on the market size hypothesis have focused on establishing the relationship between FDI and market size of the host countries rather than on the theoretical basis of the association (Agarwal, 1980:746).

The different rate of return theory developed by Popkin in 1965 assumes that FDI is a function of international differences in rates of return on capital investment. According to this theory, FDI flows out of countries with low returns to those expected to yield higher returns per unit of capital. The theory was popular in the fifties when American FDI increased drastically, especially in Western Europe where profits gained by American firms were significantly higher than those accruing in the US. The theory held that the relationship between the ratios of a firm's FDI to its domestic investment and the ration of its foreign to domestic gains was positive and significant. The theory was more applicable to American firms).

The liquidity theory developed by Barlow and Wender in 1955 attempted to establish a positive relationship between the internal cash flows and investment outlays of organisations. According to this theory, internally generated profit is allocated to the parent company and its subsidiaries by top management in such a way that it maximises gains from the point of view of the whole concern (Agarwal, 1980). The theory argues that liquidity variables such as internally generated funds, repatriation to

the parent and subsidiary's debt capacity positively influence sales variables based on the accelerator investment theory.

2.6 EMPIRICAL LITERATURE ON FDI DETERMINANTS

The purpose of this section is to discuss empirical studies on key FDI determinants in Africa, and more specifically in Southern African countries. The section begins with empirical studies on FDI determinants outside the African region, followed by those on African regions and finally those concerned with the Southern African region.

Xaypanya, Rangkakulnuwat and Paweenawat (2015) investigated FDI determinants in the Association of South East Asian Nations (ASEAN) region using panel data from 2000 to 2011. They found that infrastructure facilities, level of openness and the negative effects of inflation on FDI inflow attracted FDI into the ASEAN region; real exchange rates, gross domestic product and net official development assistance had no impact on its FDI, however. A study by Hoang and Bui (2015) on the ASEAN region also employed panel data analysis for the years 1991 to 2009 to analyse FDI determinants. Findings revealed that market size, trade openness, quality of infrastructure, availability of human capital and labour positively influenced FDI inflows while cheap labour had a negative influence on FDI. These findings contradicted the eclectic paradigm theory, which states that labour is the ownership of FDI.

Cieslik and Anh (2016) investigated determinants of FDI in the Organisation for Economic Cooperation and Development (OECD) and in the ASEAN region, using a panel dataset from 1995 to 2012. They found that investment freedom, a common spoken language in the host country and similarity in market size between the source and host countries boosted FDI in the ASEAN region, while distance had a negative impact on FDI, in contrast to the theory of the knowledge capital model, which states that higher differences in relative factor endowments lead to higher vertical FDI (VFDI). Mohapatra (2015) compared FDI determinants in India to those in the ASEAN region using an econometric model with data ranging from 2000 to 2012. Findings showed that gross capital formation, trade position and import and export trade openness attracted FDI into the ASEAN region.

Devi (2014) analysed the factors that determined FDI in India, using secondary data obtained from the annual publications of the Reserve Bank of India (RBI) and the Statistics of the Indian economy with data ranging from 2001 to 2012. Exchange rate, government expenditure and openness of trade positively influenced FDI inflows. Baby and Sharma (2017) identified the determinants of FDI inflows into India using annual data from 1994 to 2015 obtained from the annual publication of the RBI and Bloomberg. They found that market size and forex reserves positively and significantly influenced FDI inflows while the inflation rate, real interest rate and real effective exchange rate (REER) had a negative relationship with FDI.

Using panel data analysis, with data ranging from 1995 to 2010, Chan, Hou, Li and Mountain (2014) investigated FDI and its determinants in China. They found that domestic investment, growth in GDP, technology and skills and labour cost attracted FDI; on the other hand, growth in local infrastructure and local investment affected FDI negatively in the China region. Mele and Quarto (2017) examined FDI determinants in China region using multivariate regression obtained using the statistical econometric software with a dataset containing 900 observations. They found that political risk, cultural proximity, the degree of openness to international trade and a proxy for natural resources positively and significantly influenced FDI inflows.

Hoa and Lin (2016) investigated determinants of FDI in the Indochina region using panel data analysis with data ranging from 1996 to 2012. They found that market size, government effectiveness, rule of law and political stability attracted FDI inflows significantly. Inflation rates, trade openness, corruption, regulatory quality, voice and accountability affected FDI negatively, however. Nouri and Soultani (2016) identified FDI determinants in the Cyprus region using the vector error correction model (VECM) with data ranging from 1995 to 2015. Findings indicated that rate of capital return, degree of economic openness, liquidity, tax rate, market size, infrastructure, human capital and economic growth rate positively and significantly influenced FDI inflows while government expenditure, inflation rate and exchange rate did not have an impact on FDI in the region.

Employing panel data analysis with data ranging from 1980 to 2008, Grubaugh (2013) analysed FDI determinants. The author found that GDP, market size, wages, growth rate, macroeconomic policies, exports and imports, trade openness, financial development, 100 people per telephone line and infrastructure positively and significantly influenced FDI inflows; natural resources had an insignificant impact on FDI, in contrast to the eclectic paradigm theory, which argues that natural resources are of a locational advantage for FDI. O'Meara (2015) examined the determinants of FDI using a cross-country basis of both developed and developing countries. Findings indicated that economic openness, quality of infrastructure, market size and scale of economic activity in the host country significantly influenced FDI inflows, and economic freedom, tax incentives and human capital had an insignificant effect on FDI in the host country.

Skellington (2016) analysed FDI determinants in the Czech Republic using cross-sectional analysis of data ranging from 1990 to 2016. Findings revealed that transportation infrastructure, a low personal income tax rate (PIT) and favourable conditions for investment incentives attracted FDI into the Czech Republic. Masood, Ilyas, Rehman and Sheikh (2016) analysed the determinants of FDI in the Pakistan region using Johansen's co-integration approach in a time series analysis of data ranging from 1975 to 2005. They found that gross domestic product per capita, coefficient of labor force and taxes on international trade positively influenced FDI inflows in the short run while coefficient of openness influenced FDI negatively in the short run.

Using an annual distribution of cross-border mergers and acquisition or greenfield FDI with data ranging from 1999 to 2009 in Asia and Oceania, Nagano (2013) investigated the similarities and differences of FDI determinants. Firm size, market adjustment price, forex adjustment price and population positively influenced FDI inflows while corporate tax negatively affected FDI in these regions. Tintin (2013) investigated FDI determinants in central and eastern European countries (CEEC) using panel data analysis with data ranging from 1996 to 2009. GDP size, EU membership, trade openness, economic

freedom, state fragility, political rights and civil liberties all positively and significantly attracted FDI to the CEEC.

Malhotra, Russow and Singh (2014) evaluated FDI determinants in Brazil, Russia, India and China (BRIC) using panel data analysis with a data period ranging from 1995 to 2012. They found that budget balance as a percentage of GDP, change in real wages, current account as a percentage of GDP, inflation, international liquidity, real GDP growth, unemployment, corruption, external conflict and military in politics positively and significantly influenced FDI inflows into BRIC countries. De Castro, Fernandes and Campos (2013) analysed FDI determinants in Brazil and Mexico using the VECM with data ranging from 1990 to 2010. They found that size of the domestic market, trade liberalisation and historical flows attracted FDI to these regions.

Chowdhwry and Shao (2016) analysed FDI determinants in Bangladesh using secondary data obtained from published and unpublished literature and other sources such as magazines, annual reports and theses. They found that GDP, duty free access, trade agreement facility, bilateral investment treaties, offshore banking units, tax and regulatory policies attracted FDI in Bangladesh. Sandhu and Gupta (2016) attempted to establish FDI determinants in India using time series analysis with data ranging from 1994 to 2014. In their study, GDP, exchange rate, trade openness and the US interest rate positively and significantly influenced FDI inflows while inflation and domestic interest rates had an insignificant effect.

Stoian (2013) investigated FDI determinants using panel data analysis with data ranging from 1996 to 2010. Findings suggested that technology, trade openness, foreign exchange and large-scale privatisation positively and significantly influenced FDI in the home country. Alam and Shah (2013) found potential FDI determinants in OECD countries using panel data analysis of data ranging from 1985 to 2009. They found that market size, labour costs and quality of infrastructure positively influenced FDI inflows while policies had a negative influence on FDI in this region.

Al Shubiri (2016) identified FDI determinants in the Sultanate of Oman using Pearson correlation and linear regression analysis with data ranging from 2005 to 2014. The study found that GDP, fiscal policy, economic growth, trade openness, market size and infrastructure attracted FDI to the Sultanate. Rehman (2016) compared socio-economic determinants of FDI in Pakistan using cointegration and error correction techniques on data ranging from 1984 to 2015. Findings showed that economic development, improved managerial skills, global links and access to advanced technology positively and significantly influenced FDI inflows; macroeconomic instability had a negative effect on FDI in Pakistan, however.

In China, Yong, Yew, Huang and Chin (2016) employed spatial panel data analysis on data ranging from 1994 to 2008 to examine FDI determinants. They found that an open door policy, economic growth, geographical distribution and infrastructure positively and significantly influenced FDI inflows while a more coherent policy influenced FDI had an insignificant effect on FDI in China. These findings were in keeping with the eclectic paradigm theory, which states that geographical distribution is an advantage when it comes to FDI. Weyzig (2013) analysed FDI determinants in the Netherlands using regression analysis: tax variables and tax treaty effects positively and significantly influenced FDI inflows but corruption had a negative impact on FDI.

Using panel data analysis with data ranging from 1980 to 2010, Soumia and Abderrezzak (2013) studied the determinants of FDI in Arab Maghreb (AMU). They found that the adoption of an export promotion trade regime, market size, trade openness, quality of infrastructure, human capital development, macroeconomic stability, international competitiveness, level of financial development and export diversification positively and significantly influenced FDI inflows into AMU. Larimo and Arslan (2013) addressed FDI determinants in CEEC using binary logistic regression analysis of data ranging from 1990 to 2007. Low target country risk, large economic size and high economic growth were found to attract FDI in this region.

Yin, Ye and Xu (2014) analysed location FDI determinants in China, employing panel analysis of data ranging from 2000 to 2010. They found that labour costs, market size,

human capital, infrastructure, agglomeration effects, environmental factors, degree of openness and government intervention attracted FDI into the China region. Narayan (2014) analysed the determinants of FDI in India using a correlation matrix and multiple regression analysis on data ranging from 1991 to 2013. The study revealed that size of GDP, labour costs, market size, export promotion, lower fiscal deficit, quality of infrastructure, growth rate of GDP and higher forex reserves positively and significantly influenced FDI inflows; a weak legal framework and political instability had a negative effect on FDI in India.

Rashid et al. (2017) examined the determinants of FDI using a provincial panel data analysis for the years 2003 to 2012. The study revealed that external debt, market size and natural resources positively and significantly influenced FDI; on the other hand, economic growth, exchange rate and size of government had a negative influence on FDI. This was in line with the eclectic paradigm theory, which states that natural resources are a locational advantage for FDI. Castellani, Meliciani and Mirra (2016) investigated FDI determinants using an analysis of variance (ANOVA) with data obtained from the United Nations Conference on Trade and Development (UNCTAD) and the World Investment Report (WIR) in publications by the Economist Intelligence Unit (EIU) for the period 2005. They found that market size, labour market, and agglomeration externalities attracted FDI.

Tampakoudis, Subeniotis, Kroustalis and Skoulouddakis (2017) examined FDI determinants in middle-income countries using panel data analysis on data ranging from 1980 onwards. Findings revealed that trade openness, GDP and population growth influenced FDI positively and significantly while financial development, inflation and fuel export influenced FDI negatively and insignificantly. Enache and Merion (2017) examined FDI and its determinants using the structural vector autoregressive model on data for the years 2007 to 2014. They found that technological flow vector, productivity, employment and profitability of the domestic company positively influenced FDI inflows, but economic growth reduced FDI.

The following discussions are the studies investigating and analysing FDI determinants in the African region.

Bekana (2016) investigated determinants of FDI in Ethiopia using time series analysis of data ranging from 1991 to 2013. The study revealed that GDP per capita, GDP growth rate, real interest rate, inflation rate, gross capital formation, adult literacy rate, labour force growth rate, telephone lines per 1000 people and official exchange rate attracted FDI into the Ethiopian region. Chika (2014) examined FDI determinants in sub-Saharan Africa (SSA) using panel data techniques on data ranging from 1996 to 2010. Findings were that return on capital (ROC), market size, infrastructure development, human capital, control of corruption, trade openness and strategic assets positively influenced FDI inflows, while natural resources had an insignificant effect on FDI in the region. These findings were counter to the eclectic paradigm theory, which states that natural resources are of a locational advantage to FDI.

Al-Khouri (2015) examined FDI determinants in the Middle East and North Africa (MENA) region using panel data from 1984 to 2012. The study revealed that agglomeration and trade openness attracted FDI into the MENA region but economic and political risk had a negative influence on FDI. Likewise, Salem and Baum (2016) identified FDI determinants in the MENA region using panel data from 2003 to 2009. They found that foreign investors' competition, economic growth, size of the economy, human development and infrastructure positively influenced FDI inflows while foreign investors' taxation and unemployment growth influenced FDI into the MENA region negatively, in contrast to the eclectic paradigm theory that states that internalised greenfield development is a locational advantage for FDI.

Using the ordinary least square model with data ranging from 1980 to 2013, Wasseja and Mwenda (2015) investigated FDI determinants in Kenya. They found that economic growth, open economies, inflation and exchange rate positively and significantly influenced FDI inflows but that inappropriate technologies and lower domestic savings had a negative effect FDI; these findings were in contrast to the institutional FDI theory, which states that technology transfer and proper government policy attracts FDI. Simel

et al. (2017) determined the socio-economic determinants of FDI inflows in Kenya using annual data obtained from the World Bank (WB) and the International Monetary Fund (IMF) with data from 1980 to 2015. They found that economic growth, human capital development, cost of borrowing and inflation rate had a negative but not significant influence on FDI inflows to Kenya.

Awolusi, Pelser and Adelekani (2016) analysed FDI determinants in African economies employing panel data analysis with data from 1980 to 2013. Trade openness, macroeconomic conditions, infrastructural development and monetary union were found to positively and significantly influence FDI inflows; on the other hand, market size had no impact on FDI in the Asian or African countries. Kingu (2016) identified FDI determinants in Tanzania using time series analysis and multiple regression analysis with data from the years 1970 to 2012. GDP, openness, economic growth, transfer of new knowledge and inflation rate were found to positively and significantly influence FDI inflows into Tanzania.

Alavinasab (2013) used the OLS regression model in Iran on data from 1991 to 2009 to identify economic FDI determinants. Findings revealed that real GDP growth, the proportion of imports to GDP, market size, trade openness, ROI and infrastructure positively and significantly influenced FDI inflows while government consumption had an insignificant impact on FDI in this region. Offiong and Atsu (2014) examined FDI determinants in Nigeria using a multiple OLS regression model with data ranging from 1980 to 2011. They found that GDP, wage rates, interest rate, market size, quality infrastructure and openness index had a positive effect on FDI inflows to Nigeria.

Using cross-sectional analysis on data from 2002 to 2007, Indopu and Talla (2017) analysed FDI determinants in Africa. Their study found that market size and natural resources attracted FDI into the African region. Khalil (2015) analysed FDI determinants in the Egyptian region using cointegration regression analysis on data for the years 1970 to 2013. GDP, household expenditure, degree of commercial exchange, population, domestic investment, savings and balance of payment positively and

significantly influenced FDI inflows while inflation, unemployment, general government expenditure, exchange rate and interest rate had a negative effect on FDI in this region.

Jabri and Brahim (2015) also examined the FDI determinants in the MENA region employing panel data analysis on data from 1984 to 2011. They have found that openness, growth rate, exchange rate, economic instability, institutional indicators such as government stability, investment profile, rule of law and internal and external conflict attracted FDI to this region. Rogmans and Ebbers (2013) tested FDI determinants in the MENA regions using an OLS regression model on data from the years 1987 to 2008. GDP per capita, trade openness and oil prices were found to positively influence FDI inflows while energy endowments had a negative impact on FDI in the region. This was counter to the eclectic paradigm, which states that natural resources represent a locational advantage FDI.

Samuel, Gregory and Maurice (2015) focused on FDI determinants in Kenya using a cross-sectional analysis of data from the period 2008 to 2013. They found that market size of the economy, trade openness and good governance positively and significantly influenced FDI inflows; on the other hand, low capital injection, limited access to finance and a poor institutional framework influenced FDI in Kenya negatively. As expected, a combination of OLI and institutional determinants positively or negatively affected FDI. Using panel co-integration analysis on data from 1970 to 2010 in the MENA region, Jabri et al. (2013) investigated FDI determinants. They found out that openness, growth rate, exchange rate, inflation rate and economic stability attracted FDI into the MENA region.

Makun (2016) examined FDI determinants using co-integration and an error correction reaction model (ECRM) on data from the period 1980 to 2013. The study found that GDP and trade openness influenced FDI inflows positively while GDP per capita, exchange rate and political instability impacted FDI negatively. Mukhtar, Ahmad, Waheed, Ullah and Inam (2014) explored FDI determinants in developing countries using the findings of various studies and articles. They found that openness to international trade, market size, tax rate, exchange rate, infrastructural development,

institutions, labour cost, GDP, inflation and political risk positively and significantly influenced FDI inflows into developing countries.

Uduak, Salisu and Asongu (2014) investigated the determinants of FDI in BRICS and Mexico, Indonesia, Nigeria and Turkey (MINT) using panel data from 2001 to 2011. Their findings indicated that infrastructure and trade openness positively and significantly influenced FDI inflows but natural resources and institutional quality had a negative but insignificant impact on FDI in these reasons, not in keeping with the eclectic paradigm theory, which states that natural resources are a locational advantage for FDI. Fanbasten and Escobar (2016) also studied the determinants of FDI in the MINT region, using panel data analysis on data for the years 1990 to 2014. They found that market size, economic instability, infrastructure facilities, trade openness, institutional stability and political stability positively and significantly influenced FDI inflows; natural resource availability had a negative effect on FDI in the MINT region, however. These findings ran counter to the eclectic paradigm theory, which states that natural resources are a locational advantage for FDI.

Rachdi, Brahim and Guesmi (2016) investigated FDI determinants in emerging markets using panel cointegration techniques on data from 1984 to 2011. They found that economic growth and trade openness positively and significantly influenced FDI inflows while inflation and real effective exchange rate had a negative effect on FDI in emerging markets. Rozanski and Sekula (2016) analysed FDI determinants for developed and emerging markets, employing panel regression analysis with data ranging from 1996 to 2014. Findings indicated that growth dynamics, increasing welfare, government stability index, rule of law index and the size of the market positively and significantly influenced FDI inflows; corruption and quality of democracy did not undermine FDI.

Since the main aim of this study was to analyse the key determinants of FDI in African countries, it was important to analyse FDI determinants in the countries. Little quantitative analysis of key FDI determinants in African countries, and more specifically in Southern African countries, has been conducted up top now. The following are the studies investigated and analysed in the Southern African region.

Megbowon, Ngarava and Mushunje (2016) studied FDI inflow, capital formation and employment in South Africa using time series analysis of data from the years 1980 to 2014. They found out that percentage of population growth, trade openness, employment rate, gross savings, inflation rate, consumer price index (CPI) and total investment percentage of GDP positively and significantly influenced FDI inflows in South Africa. Duarte, Castro, Miura, Moraes, Feijo and Carvalho (2014) examined the factors that determine the rate of FDI inflow into the Mozambican region using annual data ranging from 1992 to 2013. Policy, skills transfer, advanced technology, infrastructure and tertiary education were found to positively and significantly affect the flow of FDI into the Mozambican region.

Chiwira and Kambeu (2016) investigated economic growth as an FDI determinant in the Botswana region. They employed a time series analysis with data ranging from 1980 to 2012. They found that economic growth positively and significantly influenced FDI inflows into this region. Gupta and Singh (2016) investigated FDI determinants in Brazil, Russia, India, China and South Africa (BRICS) using panel regression on data from the period 1983 to 2013. Their findings indicated that the industrial production index (IPI), inflation rates, trade openness, high unemployment rates, real effective exchange rate and cheap labour costs attracted FDI into BRICS countries.

Using panel data analysis with data ranging from 1985 to 2010 on the South African Development Community (SADC), Vinesh, Boopendra and Hemraze (2014) analysed determinants of FDI. They found that trade openness, GDP, natural resources and secondary school enrolment rates positively and significantly influenced FDI inflows while 100 people per telephone line and exchange rate had an insignificant effect on FDI inflows to this region. Mahembe and Odhiambo (2014) examined the dynamics of FDI inflows in six SADC countries using annual data from 1980 to 2012. They found that socialism, central economic planning, state ownership, import substitution, protectionism and strong government regulation had a negative effect on FDI in the region.

FDI is influenced by various factors (Luiz & Charalambous, 2009). With the aid of time series analysis of data availability from 1996 to 2005, Luiz and Charalambous (2009) attempted to determine the factors influencing FDI in SSA. They found that country governance, political risk, macro-economic performance, exchange rate, trade incentives, barriers and agreements, infrastructure, labour, markets size and demand conditions, geographic proximity, economic agglomeration and cultural considerations were the major drivers of FDI for these countries. Dupasquier and Osakwe (2006) investigated FDI determinants in Africa and argue that political and macroeconomic instability, low growth, weak infrastructure, poor governance, inhospitable regulatory environments and ill-conceived investment promotion strategies have a negative impact on FDI.

2.7 SUMMARY OF FDI DETERMINANTS

Table 2 summarises the influence of various factors on FDI from a theoretical point of view.

Table 2 Positive and Negative impact of FDI Determinants

FDI determinant (s)	Direction of the impact on FDI	Source
Inflation rate	-	Jadhav (2012), Gupta and Singh (2016), Megbowon et al. (2016), Rachdi et al. (2016), Jabri et al. (2013), Kingu (2016), Wasseja and Mwenda (2015), Xaypanya et al. (2015), Baby and Sharma (2017), Hoa and Lin (2016), Nouri and Soultani (2016), Malhotra et al. (2014), Sandhu and Gupta (2016), Bekana (2016), Simel et al. (2017), Khalil (2015), Mukhtar et al. (2014)
Trade openness	+	Jadhav (2012), Gupta and Singh (2016), Vinesh et al. (2014), Megbowon et al. (2016), Xaypanya et al. (2015), Hoang and Bui (2015), Devi (2014), Hoa and Lin (2016), Nouri and Soultani (2016), Grubaugh (2013), O'Meara (2015), Tintin (2013),

		Chowdwry and Shao (2016), Sandhu and Gupta (2016), Stoian (2013), Al Shubiri (2016), Soumia and Abderrezzak (2013), Yin et al. (2014), Tampakoudis et al. (2017), Chika (2014), Al-Khouri (2015), Wasseja and Mwenda (2015), Awolusi et al. (2016), Kingu (2016), Alavinasab (2013), Offiong and Atsu (2014), Rogmans and Ebbers (2013), Samuel et al. (2015), Jabri et al. (2013), Makun (2016), Mukhtar et al. (2014), Uduak et al. (2014), Fanbasten and Escobar (2016), Rachdi et al. (2016)
Corruption	-	Jadhav (2012), Hoa and Lin (2016), Malhotra et al. (2014), Chika (2014)
Rule of law	+	Jadhav (2012), Hoa and Lin (2016), Rozanski and Sekula (2016)
Political stability	+	Jadhav (2012), Hoa and Lin (2016), Tintin (2013), Fanbasten and Escobar (2016)
Government effectiveness	+-	Jadhav (2012), Devi (2014), Hoa and Lin (2016), Nouri and Soultani (2016), Yin et al. (2014), Rozanski and Sekula (2016)
Regulatory quality	+	Jadhav (2012), Hoa and Lin (2016), Uduak et al. (2014)
Ratio of net FDI inflow to GDP	+	Jadhav (2012)
Natural resource availability	+-	Jadhav (2012), Rashid et al. (2017), Chika (2014), Indopu and Talla (2017), Rogmans and Ebbers (2013), Uduak et al. (2014), Fanbasten and Escobar (2016)
Domestic investment	+	Delgado et al. (2014), Chan et al. (2014)
Central	-	Mahembe and Odhiambo (2014)

economic planning		
Strong government regulation	-	Mahembe and Odhiambo (2014)
State ownership	-	Mahembe and Odhiambo (2014)
Import substitution	-	Mahembe and Odhiambo (2014)
Secondary school enrolment	+	Vinesh et al. (2014)
GDP	+	Vinesh et al. (2014), Xaypanya et al. (2015), Chan et al. (2014), Tintin (2013), Chowdwry and Shao (2016), Narayan (2014), Tampakoudis et al. (2017), Bekana (2016), Mukhtar et al. (2014)
100 people per telephone line	+-	Vinesh et al. (2014), Grubaugh (2013), Bekana (2016)
Exchange rate	-	Vinesh et al. (2014), Xaypanya et al. (2015), Devi (2014), Nouri and Soultani (2016), Sandhu and Gupta (2016), Stoian (2013), Bekana (2016), Wasseja and Mwenda (2015), Khalil (2015), Jabri et al. (2013), Makun (2016), Mukhtar et al. (2014)
Economic growth	+	Chiwira and Kambeu (2016), Nouri and Soultani (2016), Grubaugh (2013), Al Shubiri (2016), Rehman (2016), Yong et al. (2016), Larimo and Arslan (2013), Narayan(2014), Salem and Baum (2016), Wasseja and Mwenda (2015), Simel et al. (2017), Kingu (2016), Rachdi et al. (2016)
Consumer price index	+	Megbowon et al. (2016)

Gross savings	+	Megbowon et al. (2016)
Population growth	+	Nagano (2013), Tampakoudis et al. (2017)
Employment rate	+	Megbowon et al. (2016), Malhotra et al. (2014), Enache and Merion (2017)
Total investment percentage	+	Megbowon et al. (2016)
Skill transfer	+	Duarte et al. (2014), Rehman (2016), Kingu (2016)
Advanced technology	+	Stoian (2013), Rehman (2016), Enache and Merion (2017), Duarte et al. (2014)
Infrastructure	+	Duarte et al. (2014), Hoang and Bui (2015), Nouri and Soultani (2016), Grubaugh (2013), O'Meara (2015), Skellington (2016), Alam and Shah (2013), Al Shubiri (2016), Yong et al. (2016), Soumia and Abderrezzak (2013), Yin et al. (2014), Narayan (2014), Chika (2014), Salem and Baum (2016), Awolusi et al. (2016), Alavinasab (2013), Offiong and Atsu (2014), Mukhtar et al. (2014), Uduak et al. (2014), Fanbasten and Escobar (2016)
External debt	+	Rashid et al. (2017)
Market size	+	Rashid et al. (2017), Hoang and Bui (2015), Baby and Sharma (2017), Hoa and Lin (2016), Nouri and Soultani (2016), Grubaugh (2013), O'Meara (2015), Nagano (2013), De Castro et al. (2013), Alam and Shah (2013), Al Shubiri (2016), Soumia and Abderrezzak (2013), Larimo and Arslan (2013), Yin et al. (2014), Narayan (2014), Castellani et al. (2016), Chika (2014), Salem and Baum (2016), Alavinasab (2013), Offiong and Atsu (2014), Indopu and Talla (2017), Samuel et al. (2015),

		Mukhtar et al. (2014), Fanbasten and Escobar (2016), Rozanski and Sekula (2016)
Political instability	-	Makun (2016), Mukhtar et al. (2014)
Tax rate	+	Makun (2016), Nouri and Soultani (2016), Chowdwry and Shao (2016), Weyzig (2013), Mukhtar et al. (2014)
Labour costs	+	Makun (2016), Alam and Shah (2013),Yin et al. (2014), Narayan (2014), Castellani et al. (2016), Bekana (2016), Mukhtar et al. (2014)
Low capital injection	-	Samuel et al. (2015)
Limited access to finance	-	Samuel et al. (2015)
Poor institutional framework	-	Samuel et al (2015)
Economic stability	+	Jabri et al. (2013), Soumia and Abderrezzak (2013)
Energy endowments	-	Rogmans and Ebbers (2013)
Cheap labour	-	Hoang and Bui (2015)
Human capital development	+-	Hoang and Bui (2015), Nouri and Soultani (2016), O'Meara (2015), Soumia and Abderrezzak (2013), Yin et al. (2014), Chika (2014), Salem and Baum (2016), Simel et al. (2017)
Forex reserves	+	Baby and Sharma (2017), Narayan(2014)
Real effective exchange rate	-	Baby and Sharma (2017), Rachdi et al. (2016)

Forex adjustment price	+	Nagano (2013)
Investment profile	+	Jabri and Brahim (2015)
Cost of borrowing	+	Simel et al. (2017)
Foreign investor's taxation	-	Salem and Baum (2016), Nagano (2013)
Lower fiscal deficit	+	Narayan (2014)
Export promotion	+	Narayan (2014)
Weak legal framework	-	Narayan (2014)
Strategic assets	+	Chika (2014)
Agglomeration externalities	+	Chika (2014), Yin et al. (2014), Castellani et al. (2016), Al-Khouri (2015)
Balance of payment	+	Khalil (2015)
Wage rate	+	Offiong and Atsu (2014), Grubaugh (2013), Malhotra et al. (2014)

Source: Author compilation

2.8 CHAPTER SUMMARY

This chapter analysed the theories and empirical studies on the key determinants of FDI. Neither the theoretical nor the empirical researchers have reached agreement on the determinants of FDI. In the theoretical literature, most studies employed the eclectic paradigm, which provides strong arguments for determinants of FDI inflows. It

emphasises the advantages that investors take into account when making decisions on FDI; these can then be employed to identify FDI determinants. Most of the empirical studies reviewed employed panel data. Some used the error-correction reaction model, and time series; consequently, the results are unclear and unreliable. Little work has been done to establish the determinants of FDI in African countries. This emphasises the need to conduct empirical tests to establish key FDI determinants in the African context. The few related empirical studies which have focused on the African continent produced divergent, diverse and mixed findings and findings differed on the common list of FDI determinants. In a nutshell, the findings on FDI determinants in Africa have so far depended on the methodology used, the timescale of data used and the countries included in the study. This study therefore attempts to close that gap and contribute to the debate on the determinants of FDI into Africa. The next chapter discusses the research methodology, estimation techniques and methodological issues relevant to this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

As the previous chapter has demonstrated, FDI determinants remain a controversial issue. These determinants differ from one country to another and from one bloc of countries to another. Despite decades of intensive research, there is still a lack of consensus on the subject (Anwar & Sun, 2015).

This chapter consists of ten sections. Section 3.2 describes the variables used and the a priori expectations. Section 3.3 discusses the measurement of variables. Section 3.4 discusses the data, their description and sources. Section 3.5 provides a discussion of the endogeneity problem. Section 3.6 comprises the research methodologies used in previous research on FDI determinants. Section 3.7 explains the general model specification of the FDI function, while Section 3.8 explains and justifies the estimation techniques used in the study. Section 3.9 explains the robustness tests. Section 3.10 concludes the chapter.

3.2 DESCRIPTION OF VARIABLES EMPLOYED AND A PRIORI EXPECTATIONS

This section discusses the key FDI variables with those employed in the study and a priori expectations. As a result of the amount of data availability, the current study tested 10 variables in equation 3.1, namely human capital development, financial development, inflation, economic growth, trade openness, natural resources, unemployment, exchange rates, government consumption and population growth.

Market size remains the most important determinant for locating FDI, and as a result countries make every effort to avail themselves of the advantages of regionalisation as it expands market size and promotes FDI inflows into a region. This attracts significantly more foreign investors to the country (Mughal & Akram. 2011). Zheng (2009) argues that market size has a direct influence on investment return and profits and therefore FDI usually flows to countries with larger markets where larger economies of scale can be provided for FDI to exploit their ownership advantages. On the other hand, smaller market size and an unfriendly business environment discourages FDI inflow to

developing countries (Rehman, Orangzab & Raza. 2011). Vijayakumar et al. (2010), argue that greater market size should encourage more inflows to countries that to those with smaller markets. Theoretical predictions are that market size should have a positive effect on FDI.

Fluctuations in exchange rates remain the most crucial matter in FDI decision-making. Consequently, currencies subjected to higher depreciation discourage foreign investors as their investment will decline (Mughal & Akram. 2011). Zheng (2009) argues that economies that have weak currencies should attract FDI inflows from strong currencies, as this investment would enjoy the advantage of higher purchasing power in the host country. On the other hand, the effects of exchange rates are ultimately an empirical question and if there are fixed costs involved in the acquisition of an organisation, standard option theory predicts that firms will delay their acquisition of higher exchange rate volatility (Giovanni. 2005). Vijayakumar et al. (2010) claims that depreciation of a currency would consequently reduce exchange rate risk. As currency devalues, the purchasing power parity of the investors in foreign currency terms is increased, thus currency value positively and significantly influences FDI inflows. In line with theoretical predictions, changes in exchange rates are expected to have a negative impact on FDI.

Cushman (1987) concludes that cheap labour cost should be a crucial determinant of FDI inflow, while few studies have found that evidence in developed countries. Bellak, Leibrecht and Riedl (2008) argue that higher labour costs are a warning to FDI; in particular, the results for unit labour costs highlight the point that an increase in unit labour cost by a percentage point may lead to a decrease in FDI inflow. On the other hand, high labour costs may indicate a high quality of life. Thus, quality of life is another factor that can explain the positive impact of labour costs on FDI (Cheng & Roger. 2006). Cheap labour attracts countries with high wage levels and those firms trying to cut costs by transferring production to a country where resources are available at a lower cost (Janicki & Wunnava, 2004). Theoretical predictions are that cheap labour costs are expected to have a positive impact on FDI.

Well-developed and good quality infrastructure increases FDI inflow into a country and this makes it easier to import and export critical goods needed for production processes (Demirhan & Masca, 2008). Bellak, Leibrecht and Damijan (2009) argue that the important infrastructure includes transport systems, communication and electricity production facilities as well as transmission facilities for electricity, gas and water. On the other hand, a developed infrastructure reduces transaction costs by allowing entrepreneurs to unite easily with their suppliers and customers (Kinda, 2010). Infrastructure should thus improve the FDI investment climate by subsidising the cost of total investment by foreign investors and improving the rate of return (Khadaroo & Seetanah, 2009). Theory predicts that infrastructure will have a positive impact on FDI.

High Inflation rates increase uncertainty and this discourages long-term investment in a country (Omankhanlen, 2011). Grosse and Trevino (2005) argue that the success of government in controlling inflation results in lower costs for foreign investors and less uncertainty about long-term capital investment; this therefore increases FDI inflow. On the other hand, high inflation rates highlight internal economic instability and the host government's inability to maintain monetary policy (Trevino, Thomas & Cullen, 2008). Ezeoha and Cattaneo (2012) believe that a higher inflation rate is detrimental to financial development as it discourages foreign investors from investing in a country. In the presence of high inflation, large companies are skeptical about investing as their capital budgeting and long-term planning become more uncertain. Theoretically, inflation is expected to have a negative effect on FDI.

The availability of natural resources encourages resource-seeking activities in the host country and this usually gives rise to trade rather that to FDI (Baniak, Cukrowski & Herczynski, 2005). Wahid, Sawkut and Seetanah (2009) argue that in contrast to eclectic paradigm theory, countries gifted with natural resources will receive more FDI. This paradigm states that natural resources are a location advantage. Consequently, FDI in Africa is focused on countries that have plentiful natural resources, particularly oil (Onyeiwu & Shrestha, 2004). Several studies have suggested that host country invests in resource-developed countries to receive more security of access to energy and other

resources. In line with theoretical predictions, natural resources could have a positive or a negative impact on FDI.

Corporate tax can be a burden factor that decreases profitability; this discourages investors and makes it difficult for them to invest in the host country (Bellak & Leibrecht, 2009). De Mooij and Ederveen (2003) argue that foreign double taxation discourages foreign activity and most countries attempt to avoid it by means of bilateral treaties based on the OECD model tax convention. On the other hand, a company resident in another country incorporates tax into the framework through the pretax required rate of return on investment in the host country (Duvereux & Freeman, 1995). Feld and Heckemeyer (2011) argue that to capture tax incentives on cross-border investments, the effective tax rates are successfully tailored. In the absence of taxation, the real interest rate is equal to the cost of capital in the host country. According to theoretical predictions, corporate tax has a negative impact on FDI.

Political instability decreases profitability and FDI inflow, particularly if there is domestic instability in the economy of the country. This makes it difficult to export critical machinery as goods may be damaged or destroyed (Brada, Kutan & Yigit, 2006). Fatehi-Sedeh and Safizadeh (1989) argue that large corporations may continue to invest in a politically unstable country because the expected return on investment justifies accepting the risk involved. On the other hand, high profitability in the extractive industries seems a reward of political instability (Demirhan & Masca, 2008). Political instability and violence should make a country less attractive for FDI since they render the economic and political context unpredictable (Buthe & Milner, 2008). In line with theoretical predictions, political instability may have either a positive or a negative impact on FDI.

Government effectiveness refers to the quality and freedom of public services and government's ability to formulate and implement effective and friendly policies (Mengistu & Adhikary, 2011). Daude and Stein (2007) argue that the quality of government institutions positively affects foreign investors, particularly their location decisions. Government effectiveness not only influences the willingness and the ability of

companies to invest internationally but also their selection of investments abroad and their choice of location (Wang, Hong, Kafouros & Wright, 2012). Outreville (2007) observes that the World Bank Institute (WBI) has published five indices, namely perception of quality of public provision, the quality of bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies for government effectiveness. Theoretical predictions are that government effectiveness may have a positive or a negative impact on FDI.

Economic growth increases foreign currency inflow only when adequate absorptive capacity of advanced technologies is available in the host economy. If this is the case, it is easier for the host country to invest abroad (Borensztein, De Gregorio & Lee, 1998). Alfaro, Chanda, Kalemli-Ozcan and Sayek (2004) argue that in order to promote economic growth of the host country, the state of financial development reduces the cost of external finance to corporations. On the other hand, rapid economic growth leads to high levels of aggregate demand that promote greater demand for investments, including FDI (Zhang, 2001). Growth rates of less developed countries (LDCs) are judged to be highly dependent on the degree to which these countries can accept and implement available new technologies (Hermes & Lensink, 2003). Theoretical predictions are that economic growth is expected to have a positive impact on FDI.

Export and FDI increases GDP in the economy of the exporting country and this makes it easier to import and attract investors to the country (Yao, 2006). Basu, Chakraborty and Reagle (2003) argued that brighter and more stable GDP prospects in host countries increase and attract FDI inflow. On the other hand, export and GDP promote FDI by paving the way for it by decreasing the investor's transaction costs through knowledge of the host country's market structure (Hsiao & Hsiao, 2006). Sun and Parikh (2001) observe that a lack of available infrastructure does not promote economic growth but on the contrary takes resources away from the non-export sector and reduces economic growth. Theory predicts that GDP will have a positive impact on FDI.

Corruption decreases foreign currency flow into an economy as investors avoid countries where high levels of corruption exist in an effort to reduce risk and uncertainty (Voyer & Beamish, 2004). Zhao, Kim and Du (2003) argue that the impact of corruption directly affects societies that are most in need of government assistance. On the other hand, corruption raises the costs of doing business and negatively impact FDI, thus corruption falls within the broader negative effects of being a rent-seeking activity that increases transaction costs in the economy (Helmy, 2013). Egger and Winner (2005) describe corruption as the misuse of power by public officials for private advances; it affects economic development and is one of the characteristics of low-income countries. Theoretical predictions are that corruption will either have a positive or a negative impact on FDI.

Human capital development where countries restrict the economic sectors in which foreign investors invest increases FDI inflows and this encourages improvements in human development when countries maintain policies that favour domestic investors over foreign investors (Reiter & Steensma, 2010). Suliman and Mollick (2009) argue that the often neglected elements of human capital development have a clear role in the improvement of FDI inflows into economies. Human capital development hand in hand with FDI is usually considered to be among the key drivers of economic growth in both developed and developing countries (Majeed & Ahmad, .2008). Agbola (2013) believes that FDI may lead to overall economic growth but it may hamper the development of domestic firms and human capital development in the end because it negatively affects investment in human capital. Theory predicts that human capital development may have a positive or a negative impact on FDI.

Those investigating factors that influence FDI have generally ignored the role of the population of a country and that neglect seems inspired by the theoretical support for the assumption that a large population is likely to reduce economic growth (Aziz & Makkawi, 2012). Akin (2009) argues that both population and GDP are crucial elements in attracting FDI to a country and that the total size of GDP possibly reflects population size rather than per capita income. On the other hand, human capital development and improving population health in developing countries are the crucial elements for the

countries that wish to attract FDI inflows in their region. (Alsan, Bloom & Canning, 2006). A large population is detrimental to economic growth and consequently financial development because such populations, if they remained unchecked, increase at a geometric rate while the import of food supply increases at an arithmetic rate (Aziz & Makkawi, 2012). Theoretical predictions in this regard are that population may have a positive or a negative impact on FDI.

3.3 MEASUREMENT OF VARIABLES

Chakrabarti (2001) claims that real GDP to cross-country regression is the best measure of market size because it supports the notion that a large market is necessary for effective use of resources and misuse of economies of scale. Its weakness is that FDI will start to increase after the market size grows to some critical value with its further expansion. A larger market size is associated with a higher level of inward FDI. The GDP is a proxy of economic growth because it circumvents the weakness of the multinational firm both to generate revenue in the province and to gain access to local markets by showing that a larger market in a province can attract more FDI to that province.

In study by Mina (2007), the number of telephone mainlines and cellular mobile phones per 1000 people was the best measure of infrastructure as it indicated the level of efficiency of infrastructure development in the provision of credit and was directly related to attracting FDI and economic growth. Its strength is that in principle better quality infrastructure is expected to attract FDI inflows to a region. The development of infrastructure increases FDI inflows to a region. The study selected the quality of infrastructure provided by the financial sector as this circumvents the weakness of both the infrastructure development in the region and technology constraints in the region by showing the power of high quality infrastructure to attract FDI to a region.

McKenzie and Melbourne (1999) argue that the real exchange rate to international trade is the best measure of exchange rate because the effects of uncertainty on a firm's profit and expenses that arise from fluctuations in the nominal exchange rate can be offset in large part by movements in prices and costs. Its weakness is that there is

differing findings on the influence of depreciation of real exchange rates in the host country on FDI inflows. The current study selected domestic prices and costs provided by real exchange rate (% of GDP) because these circumvent the weaknesses of both domestic prices and costs in the host country (% of GDP) and the real exchange rate to international trade (% of GDP) by showing the influence of prices and costs of the whole real exchange rate on both the domestic and the international sectors of the economy.

In a study by Broadman and Sun (1997), they found that the average annual wage of staff and workers in a region (% of GDP) is the best measure of labour costs as it shows that foreign investors' common objective is to take advantage of host countries' cheaper inputs relative to their home countries. Its weakness is that provinces with higher labour costs can be expected to compete less favourably in their attempts to attract FDI. The domestic wage rate provided by the average annual wage of staff and workers (% of GDP) as this avoids the weakness of both the wage rate to the region by private and public sector (% of GDP) and the average annual wage rate of staff and workers by showing the influence of domestic wage rate provided by the whole country to both the private and public sectors of the economy.

Razafimahefa and Hamori (2005) believe that the consumer price index (CPI) to the SSA poorly developing countries is the best measure of inflation because it shows the level of efficiency of the macroeconomic stability in the provision of prices and it is directly related to investment and economic growth. Its weakness is that it ignores the impact of inflation policies on SSA. The domestic movements of price levels provided by SSA and developing countries (% of GDP) as this circumvents the weakness of both domestic inflation policies to SSA and developing countries (% of GDP) and CPI to the SSA and developing countries by showing the influence of domestic inflation policies provided by the whole institution on both the private and public sectors of the economy.

In their study, Nunes, Oscategui and Peschiera (2006) point out that the availability of minerals and fuels in the region (% of GDP) is the best measure of natural resources as it indicates the level of efficiency of the financial sector in the provision of investments in the region. Its weakness is that it ignores the impact of all investments directed towards

the region. The domestic availability of natural resources provided by the public sector (% of GDP) because this avoids the weakness of both domestic availability of natural resources by public sector (% of GDP) and minerals and fuels to the private sector (% of GDP) by showing the influence of domestic availability of natural resources provided by all institutions to both private and public sectors of the economy.

Taxes on income and profits and capital gains to developing countries are the best measures of corporate tax because these shows the level of efficiency of firms in the making of investment decisions and are directly related to investment and economic growth (Azemar & Delios, 2008). Their weakness is that they ignore the impact of corporate tax directed towards FDI in developing countries. The taxable income provided by financial sector (% of GDP) as this circumvents the weaknesses of both taxable income to private sector by firms (% of GDP) and capital gains to the private sector (% of GDP) by showing the influence of domestic taxable income provided by the whole financial sector to both the private and public sectors of the economy.

Asiedu (2006) found that the number of forced changes in the government of the country is the best measure of political stability because it shows the level of efficiency of the policy variables in the provision of investment policies and it is directly connected to investment and economic growth. Its weakness is that it ignores the economic impact of all the investment decisions directed towards the public sector. The domestic forced changes in the ruling government because this variable highlights the weaknesses of both the domestic political authorities by government (% of GDP) and policy variables to the public sector (% of GDP) by showing the influence of domestic political instability caused by the whole government authorities on both the private and public sectors of the economy.

The competence of the bureaucracy and the quality of public service delivery to the public sector is the best measure of government effectiveness because it shows the level of efficiency of the public sector in the provision of service delivery and is directly connected to investment and economic growth (Dikova & Witteloostuijn, 2007). Its strength is that it prioritises the regulatory quality of all government policies directed at

the public sector. The domestic government effectiveness provided by public sector (% of GDP) because this circumvents the weakness of both domestic government effectiveness to public sector (% of GDP) and regulatory quality to the public sector (% of GDP) by showing the influence of domestic government effectiveness provided by the government to both the private and public sectors of the economy.

In their study, Boreinsztein, De Gregorio and Lee (1998) found that advanced technology to the private sector is the best measure of economic growth because it shows the level of efficiency of the financial sector in the provision of technology and is directly connected to investment and economic growth. Its weakness is that it ignores the economic impact of all advanced technologies directed at the private sector. The domestic economic growth provided by financial sector (% of GDP) because this circumvents the weakness of both domestic economic growth to private sector (% of GDP) and advanced technology to the private sector (% of GDP) by showing the influence of domestic economic growth provided by the whole financial sector to both the private and public sectors of the economy.

Market size to the private sector is the best measure of GDP, Ali and Guo (2005) argue, because it shows the level of efficiency of the financial sector in the provision of FDI decision-making and it is directly connected to economic growth and FDI. Its weakness is that it ignores the economic impact of market size directed at the public and private sector. The domestic GDP provided by the financial sector (% of GDP) because this avoids the weakness of both domestic GDP to private and public sector (% of GDP) and market size to the private and public sector (% of GDP) by showing the influence of domestic GDP provided by the whole financial sector to both the private and public sectors of the economy.

In their study, Habib and Zurawicki (2001) found that the degree of international openness and political stability in a country are the best measurements of corruption because these indicate the level of efficiency of the government in the provision of investments and are directly connected to FDI and economic growth. The weakness of this measure is that it ignores the political impact of all the financial sector credit

directed to the public sector. The variable of corruption provided by financial sector (% of GDP) because it circumvents the weakness of both domestic corruption to public sector (% of GDP) and political stability to the public sector (% of GDP) by showing the influence of domestic corruption provided by the government to both public and private sectors of the economy. In addition, data were easily available on the World Bank Database.

Luiz (1997) argues that training in advanced technology and skills transfer to the private sector are the best measurements of human capital development as they reflect the level of efficiency of human capital in knowledge transfer and are directly connected to FDI and economic growth. The weakness of these measures is that they ignore the technological impact of all financial sector training directed at the private sector. The human capital development provided by financial sector (% of GDP) as a variable because it avoids the weakness of both the domestic human capital development to private sector (% of GDP) and knowledge transfer to the private sector (% of GDP) by showing the influence of domestic human capital development provided by financial sector on both public and private sectors of the economy, and because data were easily obtained from the World Bank Database.

In the study by Sethi, Guisinger, Phelan and Berg (2003) findings revealed that the year-end population in millions of the country is the best measure of population because it shows the level of efficiency of FDI decision-making in the population growth and is directly related to FDI and economic growth. Its weakness is that it ignores the employment rate impact of all the population directed at the public and private sector. The domestic population provided by public sector (% of GDP) because (1) it circumvents the weakness of both the domestic population to public sector by government (% of GDP) and year-end population in millions to the country (% of GDP) by showing the influence of domestic population provided by the country on both the private and public sectors of the economy; data were also easily available from the World Development Database.

3.4 DATA, DESCRIPTION AND SOURCES

The dependent variable was FDI, measured by net FDI inflows as a percentage of GDP. The independent variables were: market size measured by real GDP; infrastructure measured by the telephone mainlines and cellular mobiles per 1000 people; exchange rate measured by real exchange rate; labour cost measured by average annual wage of staff and workers; inflation measured by consumer price index; natural resources measured by the availability of minerals and fuels; corporate tax measured by taxes on income and profit and capital gains; political instability measured by the number of forced changes in top government; government effectiveness measured by the competency of bureaucracy and the quality of public service delivery; economic growth measured by advanced technology and GDP; GDP measured by market size; corruption measured by the degree of international openness and political stability; human capital development measured by knowledge transfer; population measured by the year end population in millions.

The focus of this study was to explore the key determinants of FDI in African countries. The annual data for the key FDI determinants employed in the study related to the period 2003–2015. The choice of the study period was based purely on data availability. Data for the variables were obtained from the World Bank database. Tustin, Ligthelm, Martins, van Aardt and van Wyk (2005) define secondary data as existing data that can be used in solving the problem in question. They observe that the collection and application of secondary data is also known as desk research (Tustin et al., 2005). Secondary data were obtained from time series reports on key FDI determinants from 2003–2015. In addition, World Development Indicators were used, as well as panel data, which allowed longitudinal analysis of data to be more efficient and effective in addressing the objectives of the study.

3.5 THE ENDOGENEITY PROBLEM

Alfaro et al. (2004) observe that several countries with strong financial systems reduce the complex FDI process and performance into a single score. It is argued that such outcomes reflect that countries with well-developed financial markets and financial systems gain significant advantage from FDI. Hence, ranking against different measures of financial market development and the inclusion of other determinants of economic growth should be interpreted carefully. Alfaro et al. (2004) recommend that one should focus on endogenous relationships between FDI variables. They call for more attention to be paid to one period lagged FDI and interdependences between FDI variables and financial market development. They also advocate that instead of one period lagged analysis, annual panel data analyses should be employed in empirical FDI determinants research to measure the influence of changes in FDI determinants on a country's performance. In order to study the key FDI determinants when examining FDI variables, the researcher has to take into account the impact of FDI, examine concerns of endogeneity and ensure there are complementarities between FDI determinants. It should be noted that several studies, such as Xaypanya et al. (2015), have employed panel data methods.

Borensztein et al. (1998) argue that the correlation between FDI and growth rate could arise from an endogenous determination of FDI and that cross-country regressions may be subject to endogeneity problems. Therefore, the appropriate method to use when studying the relationship between any two of these variables would be to set up two-stage least squares estimations specifying the relationships between these variables. Borensztein et al. (1998) point out that the specification and estimation of such a system of two stage least squares is significantly negative. The endogeneity problem can be avoided by applying instrumental variable techniques. However, there is a fundamental problem that there are no ideal instruments available; most previous studies have been incomplete for the reason that they stop at the analysis of how FDI mechanisms create value, rather than investigating the results of intensive applications of different ones all together (Borensztein et al., 1998). These authors confirm that any omitted factors that promote the rate of return on capital will also raise the FDI inflow and growth rate

concurrently. If variables are endogenous, the results may be proportionally overestimated (Borensztein et al., 2008:134).

Like Borensztein et al. (1998), Li and Liu (2005), argued about the specification and estimation difficulties of simultaneous equations. The former clarify that the econometric solution for endogeneity is to use two-stage procedures that depend on instrumental variables to generate predicted values of the independence variables, such as the set of FDI variables that are not correlated with the error term. However, Li and Liu (2005) note that instrumental variables are difficult to identify. Consequently, the lack of theory underpinning the discussion of the FDI endogeneity problem propels the authors to question the competence of any instrumental variable approach to deal with potential endogeneity issues. Li and Liu (2005) call for more attention to be paid to single equations and interdependencies between FDI growth variables and economic growth performance. In order to test whether an endogenous relationship exists between FDI and GDP growth, the Durbin-Wu-Hausman test, also called the augmented regression test and referred to as DWH, is employed (Li & Liu, 2005). Li and Liu (2005) point out that the DWH test is suggested by Davidson and MacKinnon (1993) and can be simply conducted by including the residuals of each endogenous right-hand side variable as a function of all exogenous variables in a regression of the original model (Li & Liu, 2005:397).

Discussing the findings of his study, Russ (2007) notes that, as with previous studies in this field, there is a fundamental endogeneity problem in the exchange rate. Although the difficulties of addressing endogeneity are acknowledged, Russ (2007) argues that there are alternatives that the authors could use, where endogeneity may be of less concern. For example, the flexibility approach to the Dixit-Pindyck type conceptualisation of the option value and secondly find if firms price in the currency of the domestic market they are serving including the affiliates of multinationals is higher under a flexible exchange rate than a fixed exchange rate. Another concern voiced by Russ (2007) is that, based on the partial equilibrium models and on gravity models, it is still not clear what relationship exists between exchange rate uncertainty and FDI; fixed costs make it more possible that FDI will be discouraged by exchange rate volatility.

Russ (2007) observes that endogeneity of exchange rate has caused some limitation estimates to be inconsistent.

3.6 RESEARCH METHODOLOGIES USED BY PREVIOUS RESEARCHERS OF FDI DETERMINANTS

In Chapter 1, the main objectives of this study were articulated: to find the determinants of FDI from a theoretical and empirical perspective and to investigate the FDI determinants in SADC for the period 1980 to 2016 empirically. This section presents methodologies employed in earlier studies on FDI determinants.

Jadhav (2012) suggests that most empirical studies articulate that there is a positive relationship between FDI and economic growth; FDI is a crucial element of the world's growth engine as countries attempt to establish advantageous conditions to attract more FDI inflow into their economies. Jadhav (2012) used a panel data set from 2000–2009 for five developing economies, obtained from the World Bank dataset employed. Multiple regression was used to predict the value of a variable based on the value of two or more other variables. Jadhav (2012) found that market size, trade openness, voice and accountability, natural resource availability and inflation rate as FDI determinants were statistically significant and the coefficient of these variables was positive, which implies that these variables had a positive influence on total inward FDI.

A semi structured interview survey process consisting of written questionnaires and one-on-one interviews that incorporated both structured and open-ended questions was used in a study by Luiz and Charalambous (2009). They investigated the factors influencing FDI by South African financial services in SSA. They found that South African financial service firms were influenced by determinants such as the economic and political stability of the country in question, taking into consideration the profitability and long-term sustainability of its specific markets. Luiz and Charalambous (2009) interviewed senior management as part of the decision-making process in terms of foreign investment decisions. A standardised multi-point questionnaire was used to collect structured data on the identified investment factors.

Extreme bounds analysis (EBA) developed by Leamer (1983, 1985) and extended by Granger and Uhlig (1990) was used as a research methodology in Moosa and Cardak's (2006) study. This technique is used to identify the robustness of the determinants of dependant variables and enables the investigator to find the upper and lower bounds for the parameter of interest from all possible combinations of potential explanatory variables. It is a useful method for examining and reporting the sensitivity of estimated results of specification changes. Moosa and Cardak (2006) observe that the EBA is applied to a linear regression that is employed to explain FDI. EBA has been criticised as being too strict a test of robustness. Under its criteria, a variable is considered fragile if only one regression of several causes a change in the sign of coefficient. A particular problem with EBA is that it introduces multicollinearity, which inflates standard errors.

Panel co-integration methodologies were used to investigate the long run equilibrium across variables by Paramati, Ummalla and Apergis (2016). Their study made use of the Durbin-Hausman test recommended by Westerlund (2008) to explore the presence of cointegration. This test does not rely heavily on a priori knowledge of the integration order of the variables included in the modelling approach. Panel cointegration allows for cross-sectional dependence to be modelled by a factor model in which the errors are obtained by idiosyncratic innovations and unobservable factors that are common across units of the panel. In order to investigate the long-run elasticities, a single cointegrating vector is used for estimation and, based on the presence of co-integration results, long-run parameters should be estimated. To this end, the panel approach developed by Pesaran et al. (1999) was employed. This panel autoregressive distributed lags (ARDL) approach assumes cross-sectional independence, implying that disturbances are independently distributed across units and over time with zero mean and constant variances.

Kok and Ersoy (2009) analysed FDI determinants in developing countries, using panel data methodology to estimate the FDI equations because of their advantages over cross-section and time series in using all the information available that is not always obvious in pure cross-sections or in pure time series. The pool data was formed for 24 countries over the 1975–2005 period. Panel data applications have been increasing

over the past few years and there is no doubt that the range is going to expand further (Kok & Ersoy, 2009). Panel data refers to the pooling of observations of a cross-section of countries, households and firms over a number of periods and allows for more results that are effective and viable (Kok & Ersoy, 2009:113). Panel analysis methodology can offer a rich and influential study of a set of people if one is willing to consider both the space and time dimensions of the data.

Azman-Saini et al. (2010) employed the generalised method-of-moments (GMMs) panel estimator first proposed by Holtz-Eakin et al. (1988) and later developed by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998). Two reasons for selecting this estimator were, firstly, to control for country specific effects, which cannot be done using country specific dummies owing to the dynamic structure of the regression equation; and secondly, the estimator controls for a simultaneity bias caused by the possibility that some of the explanatory variables may be endogenous as higher output may attract more market seeking FDIs. The GMM estimators are typically employed in one and two-step alternatives. The one-step estimators use weighting matrices that are independent of estimated limitations, while the two-step GMM estimator uses the so-called optimal weighting matrices in which the moment conditions are weighted by a reliable estimate of their covariance matrix.

Similarly, Asiedu and Lien (2011) investigated democracy, FDI and natural resources, employing a linear dynamic panel data model to capture the influence of lagged FDI on current FDI. Dynamic panel data contain ignored panel level effects that are connected to lagged dependent variables and this reduces standard estimators unpredictable. The GMM estimator renders reliable estimates for such models. This estimator (GMM) often referred to as the difference estimator as it takes the first difference of the data and then employs standards of the endogenous variables as instruments. Thus, the difference estimator undergoes from the weak instruments challenges and the system estimator exhibits the several instruments problems. The system GMM estimator alleviates the challenge posed by poor mechanisms by employing additional moment conditions.

Xu and Sylwester (2016) used a gravity model on a sample of country pair observations to examine the effects of FDI on emigration. The gravity equation has become the most popular approach when examining FDI determinants (Eicher, Helfman & Lenkoski, 2012). In their study, Eicher et al. (2012) employed the HeckitBMA methodology. HeckitBMA is a nested Bayesian model averaging (BMA) approach that creates posterior model probabilities in the first stage according to the BMA methodology. HeckitBMA is designed as the average of each estimate that results from employing the combination of BMA and the model linear. The HeckitBMA inclusion probability allows the same interpretation as conventional BMA methodology; the difference is that the inclusion is based on estimates and model probabilities that account for selection prejudice (Eicher et al., 2012).

Hermes and Lensink (2003) examined FDI, financial development and economic growth in The Netherlands. They conducted an empirical investigation following the voluminous growth regression model, which was inspired by the seminal paper by Barro (1991). Depending on the objective of the study and the insights and beliefs of the researchers, different explanatory variables have been included and are significant in the literature. Scholars employing the voluminous growth regression model argue that the development of the financial system of the receiver country is an essential precondition for FDI to have a positive effect on economic growth. The empirical investigation discussed in Hermes and Lensink's (2003) article suggests that of the 67 countries in the data set, 37 had adequately developed financial systems, allowing FDI to positively affect economic growth (Hermes & Lensink, 2003).

Using the factor analysis method and regression analysis to identify FDI determinants in the case of Romania, Birsan and Buiga (2009) observed that not all transition countries have been promoted from the beginning of the presence of FDI. The factor analysis method permits an understanding of the degree of existing correlation between each variable and the particular determinant and naming determinants according to the uppermost correlation coefficients between explanatory variable and each determinant. Over the period 1991–2006 in Romania, the linear regression model obtained, all the validity hypothesis of the model tested. Birsan and Buiga (2009) found that the model

correctly expressed the relations between the dependent variable and the new independent variables.

In their study, Okereke and Ebulison (2016) utilised the techniques of econometrics to explain FDI determinants in Nigeria, using data from the years 1970 to 2011. Specifically, the ordinary least square (OLS), unit root test, cointegration and the error correction model (ECM) were used to analyse the variables. Their aim was to establish the possible relationship between variables, correct irregularities that may have influenced regression results and to identify long-run relationships between variables in Nigeria. Annual time series data on FDI inflow into Nigeria was used: interest rate, degree of trade openness, GDP, exchange rate of the naira against the US dollar over a period of 41 years. Data collected from secondary sources, the National Bureau of Statistics (NBS), included the Statistical Fact Book, Central Bank of Nigeria (CBN), Statistical Bulletin, annual reports, statement of accounts, the *Economic and Financial Review* and other appropriate periodicals.

3.7 GENERAL AND ECONOMETRIC MODEL SPECIFICATIONS

In the theoretical and empirical literature review presented in the previous chapter, a number of key FDI determinants were highlighted. These include market size, trade openness, infrastructure, exchange rate, labour cost, inflation, natural resources, tax, political stability, government effectiveness, economic growth, GDP, secondary school enrolment, human capital development and population. Model 3.1 summarises the determinants of FDI as informed by the theoretical and empirical literature (Tsaurai. 2017b; Kholdy & Sohrabian. 2008; Alfaro et al., 2004; Asiedu & Lien. 2011; Soumare & Tchana, 2015) as discussed in Chapter 2.

The current research follows empirical work in particular that of Asiedu (2002), to analyse the key FDI determinants inflows in Africa. The following empirical model will be used:

$$FDI = f(HCD, FIN, INF, GR, OPEN, NAT, UNEMP, EXCH, GCNS, POP) \quad [3.1]$$

Where: FDI, HCD, FIN, INF, GR, OPEN, NAT, UNEMP, EXCH, GCNS and POP represent foreign direct investment, human capital development, financial development, inflation, economic growth, trade openness, natural resources, unemployment, exchange rates, government consumption and population growth respectively. The choice of explanatory variables was constrained by the availability of data from African countries and guided by both the theoretical and the empirical literature.

In econometric terms, equation 3.1 is transformed into equation 3.2 below.

$$FDI_{i,t} = \beta_0 + \beta_1 HCD_{i,t} + \beta_2 FIN_{i,t} + \beta_3 INFR_{i,t} + \beta_4 GR_{i,t} + \beta_5 OPEN_{i,t} + \beta_6 NAT_{i,t} + \beta_7 UNEMP_{i,t} + \beta_8 EXCH_{i,t} + \beta_9 GCNS_{i,t} + \beta_{10} POP_{i,t} + \mu + \varepsilon \quad [3.2]$$

FDI_{it-1} is the lag of FDI, subscripts t and i respectively are country and time. μ_i stands for the time invariant and unobserved country specific effect while β_0 represents the intercept term that captures common changes to all countries. ε_{it} is the error term. $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}$ represent the coefficients of the variables employed.

In line with theoretical predictions, Tsaurai (2018a) noted that human capital and stock market development in the host country complement each other in enhancing FDI. In order to test the impact of the complementarity between human capital and financial development, equation 3.2 was transformed into equation 3.3.

$$FDI_{i,t} = \beta_0 + \beta_1 HCD_{i,t} + \beta_2 FIN_{i,t} + \beta_3 (HCD_{i,t}.\ FIN_{i,t}) + \beta_4 INFR_{i,t} + \beta_5 GR_{i,t} + \beta_6 OPEN_{i,t} + \beta_7 NAT_{i,t} + \beta_8 UNEMP_{i,t} + \beta_9 EXCH_{i,t} + \beta_{10} GCNS_{i,t} + \beta_{11} POP_{i,t} + \mu + \varepsilon \quad [3.3]$$

Equation 3.3 introduces the interaction term whose co-efficient is β_3. Following Goff and Singh (2014), if the co-efficient of the interaction term is positive and significant, it means the interaction between human capital and financial development enhances FDI inflow into the African countries in question. Equation 3.3 was estimated using four panel data estimation approaches, namely fixed effects, random effects, pooled OLS and FMOLS.

Barrell and Pain (1999) argue that new foreign direct investment is attracted into the host country by existing foreign investors as this sends a signal to prospective foreign investors that the business environment is conducive. This argument forced the current study to introduce the lag of FDI ($FDI_{i,t-1}$) as one of the independent variables influencing FDI (see equation 3.4).

$$FDI_{i,t} = \beta_0 + \beta_1 FDI_{i,t-1} + \beta_2 HCD_{i,t} + \beta_3 FIN_{i,t} + \beta_4 (HCD_{i,t}.\ FIN_{i,t}) + \beta_5 INFR_{i,t} + \beta_6 GR_{i,t} + \beta_7 OPEN_{i,t} + \beta_8 NAT_{i,t} + \beta_9 UNEMP_{i,t} + \beta_{10} EXCH_{i,t} + \beta_{11} GCNS_{i,t} + \beta_{12} POP_{i,t} + \mu + \varepsilon \quad [3.4]$$

Arellano and Bond's (1991) dynamic GMM was used to estimate equation 3.4. The main advantage of this estimation procedure is that it addresses the endogeneity problem that arises from the feedback effects between the dependent variable and the independent variables. The approach also takes into account the dynamic nature of FDI, as Walsh and Yu (2010) argue. These five panel data analysis estimation approaches are discussed in detail in sub-section 3.8.3.

Table 3 summarises the variables, the proxy used, theory intuition and expected signs between the independent and dependent variables.

Table 3: ***Variables, proxies, theory intuition and a priori expectations***

Variable	Proxy used	Theory intuition	Expected sign
Foreign direct investment (FDI)	Net FDI inflow (% of GDP)	-	N/A
Initial FDI	Lag of net FDI inflow as a ratio of GDP ($FDI_{i,t-1}$)	Already established foreign investors were found to be instrumental in attracting further foreign investment as they gave signals to potential	+

		foreign investors on whether the business environment in the host country was conducive to FDI or not (Barrell & Pain, 1999). Walsh and Yu (2010) also noted that already established foreign investors enabled new investors to enjoy the positive spill over advantages they would have already created. A study by Tsaurai (2017b:138) produced similar findings on the influence of the lag of FDI on FDI.	
Human capital development (HCD)	Internet users per 100 people	Majeed and Ahmad (2008) noted that human capital development is an essential determinant of FDI, particularly for efficiency seeking FDI that requires a skilled labour force. Improved human capital development indirectly and positively influences FDI by enhancing civil liberties, health and lower crime rates (Majeed & Ahmad, 2008:6). Contrary to the majority of the literature on this subject, Kang and Lee (2007) argued that high labour costs triggered by high human capital development standards in the host country increased the cost of doing business, thereby negatively influencing FDI.	+/-
Financial development (FIN)	Domestic credit to private sector by banks (% of GDP) and broad money	Ezeoha and Cattaneo (2012) argue that developed financial markets are better able to allocate financial resources to projects whose rate of return is high, thereby promoting productivity of the foreign capital. Entry and exit barriers to foreign investors are reduced and the linkages between foreign and domestic markets are enhanced by a developed financial market in the host	+/-

		country (Kaur et al., 2013). The negative impact of financial development on FDI has been argued for by Hailu (2010). The argument is that when financial markets are developed, instead of engaging in FDI business, foreign investors are attracted to foreign portfolio investments that do not require set-up costs.	
Interaction term	Human capital development x Financial development	A study by Tsaurai (2018a) found that the complementarity between (1) human capital development and stock market capitalisation and (2) human capital development and stock market value traded had a significant positive influence on FDI in emerging markets. The interaction between human capital and financial development had a non-significant, negative effect on FDI (Tsaurai, 2018a: 33). Despite the existence of a negative relationship, human capital development was found to have reduced the overall negative effect of banking sector development on FDI.	+/-
Economic growth (GR)	GDP per capita	Jorgenson's (1963) market size hypothesis argued that the size of the economy as proxied by GDP determines the size of the market, and thus plays a crucial role in attracting FDI into the host country. This view was supported by Denisia (2010), whose study found that economic growth is a locational advantage for foreign direct investment. The view is in line with the eclectic paradigm hypothesis founded by Dunning (1973), which states that foreign investors are	+/-

		attracted by a stable macroeconomic environment. Iamsiraroj and Doucouliagos (2015) noted that the impact of economic growth on FDI is ambiguous as the former can either have a positive or negative effect on the latter. Tsai (1994) and Jensen (2003) argued that economies that grow at a faster rate than FDI growth tend to experience a decline in FDI as a ratio of GDP as a result of the scaling effect.	
Infrastructure development (INFR)	Fixed telephone subscriptions (per 100 people)	Adams (2009) argued that good infrastructure, and the existence of a general policy environment are conducive to the creation of linkage opportunities between domestic investment and FDI, thereby attracting foreign investors. Empirical studies have found that a uni-directional relationship running from infrastructure development to FDI exists (Asiedu, 2002; Mollick et al., 2006; Fung et al., 2005; Ranjan and Agrawal, 2011; Kinda, 2010). Tsaurai (2017b) noted that infrastructural development had a negative effect on FDI because countries whose level of infrastructural development is normally high have enough organic capital and do not have to rely on FDI for economic growth projects.	+/-
Trade openness (OPEN)	Trade (% of GDP)	Host countries characterised by high levels of trade openness are better able to enjoy FDI spillovers and technological effects (Cuadros et al., 2004). This argument is similar to that of Buthe and Milner (2008), who argue that foreign investors feel secure when operating in host	+

		countries whose trade openness and participation in international and preferential trade agreements is significant.	
Natural Resources (NAT)	Total natural resources rents % of GDP	Natural resources in the host country attract FDI as they are a locational advantage for FDI, consistent with Dunning's (1973) eclectic paradigm hypothesis. Host countries with fewer natural resources attract very little or no FDI, regardless of the policies they pursue (Asiedu, 2006). Significant natural resources increase investment in resource rich countries and tend to generate positive FDI spillovers (Asiedu, 2006:64). An abundance of natural resources in poor African countries has led to civil wars and conflict, negatively affecting FDI. Poelhekke and Van der Ploeg (2013) noted that natural resources have a deleterious effect on non-resource sector FDI.	+/-
Unemployment (UNEM)	Unemployment total % of total labour force modelled ILO estimate	High levels of unemployment attract foreign investors as this guarantees the ready availability of a cheap labour force (Head et al., 1999). In line with Jorgenson's (1963) market size hypothesis, FDI is attracted by potential high sales volume, which can only be guaranteed if there are low levels of unemployment in the host country. High levels of unemployment have a deleterious effect on the demand for goods, repelling foreign investors' interest.	+/-
Exchange rates (EXCH)	Official exchange rate lCU per US$, per	The advantage of having a strong currency is that foreign investors expect to gain higher rates of return	+/-

	average	after the payoff is converted into their own currency (Ma & Kao, 1990). On the other hand, Kiyota and Urata (2004) noted that a depreciation of the host country's currency increases the quantity of FDI and reduces the cost of setting up production facilities in the host country. While strong currency repels FDI, a weak host country currency attracts FDI, in keeping with Aliber's (1970) currency areas hypothesis.	
Government Consumption (GCNS)	General government final consumption expenditure % of GDP	Increased government expenditure on infrastructure or long-term projects was found to have a significant positive impact not only on FDI inflows but also on benefits from these inflows in developed and developing countries (Lee & Suruga, 2005). On the other hand, Husnain et al. (2011) observed that increased government participation in economic activities hampers FDI inflows and any beneficial impact of FDI in the host country.	+/-
Population (POP)	Population growth % annually	Higher population growth rates increase the size of the market and the demand for goods and services, thereby attracting FDI. This supports the output and market size hypothesis proposed by Jorgenson (1963). Consistent with Dunning's (1973) eclectic paradigm hypothesis, high population growth in the host country increases the size of the labour force and reduces labour costs, thereby positively influencing FDI. High population growth deters FDI as most host country governments expect foreign investors to take a leading role	+/-

		in developing local communities. Ithiga (2013) argues, this means that the larger the population, the greater the portion of profit that foreign investors are expected to set aside for community development projects.	

Source: Author's compilation

3.8 ESTIMATION TECHNIQUES IN CURRENT STUDY

This study sought to establish whether there was a relationship between FDI variables by employing dynamic GMM estimation techniques. However, before this could be done, the panel data properties of the variables had to be created using unit root tests.

The Engle-Granger (EG) method, the Auto Regressive Distributed Lag (ARDL) approach, the dynamic GMM method and the Johansen Cointegration test can all be employed to establish whether cointegration between variables exists. In this study, the dynamic GMM method was selected as it has more advantages than the simple EG approach, the ARDL method and Johansen cointegration test. Agbola (2013) has shown that when testing for cointegration using the Engle–Granger technique, OLS estimates of nonstationary time series that are not cointegrated may produce false results. In addition, the Johansen Cointegration test is not sensitive to the choice of dependent variables, assumes all variables to be endogenous, and has the advantage of analysing more than two cointegrating vectors. Such analysis is impossible using the ARDL and the EG methods.

The EG depends on a two-step estimator. Firstly, it involves generating residuals and secondly, testing the stationarity of the residuals. This results in a lack of power in unit root tests, simultaneous equation prejudice and the impossibility of performing hypothesis tests about the actual cointegrating relationships (Agbola, 2013). The GMM estimator is typically applied in one and two-step estimators. One-step estimators employ weighting matrices that are independent of estimated limitations. The two-step GMM estimator employs the so-called optimal weighting matrices in which the moment conditions are weighted by a consistent estimate of their covariance matrix. The two-

step is more efficient than the one-step estimator. The use of a two-step estimator in small samples poses several challenges that arise from the proliferation of instruments. Two-step estimators can lead to prejudiced standard errors and limitation estimates (Azman-Saini et al., 2010).

3.8.1 Panel unit root testing

Panel unit root testing has become a common method of determining stationarity and non-stationarity. Failure to perform the stationarity tests in the panel data analysis and the use of non-stationarity data in running regressions will result in false regressions. prejudicing the results and making them misrepresentative. This study used the Augmented Dickey-Fuller (ADF) and the Phillips-Peron Test to check for the stationarity of the variables as well as to determine the order of variables' integration. These two tests are discussed in detail below.

Like Tsaurai (2017a:78), the current study used panel root tests that followed a standard framework (see equation 3.5) and were based on the autoregressive model:

$$\gamma_{it} = \mu_i + \Gamma_i t + \rho_i \gamma_{it-1} + \varepsilon_{it} \qquad [3.5]$$

ε_{it} is an error term, Γ_i is the individual trend, T is the number of periods, . t=1, 2,….T, i=1, 2,….N where N is the number of countries. ρ_i is the autoregressive coefficient. As in Jiang and Liu (2014), if $I\ \rho_i\ I < 1$, γ_{it} is weakly stationary. If $I\ \rho_i\ I = 1$, γ_{it} has a unit root. Like Taiwo and Olayemi (2015), panel unit root tests include Augmented Dickey-Fuller (ADF), Fisher-tests using Philips-Perron (PP) (Im et al. 2003; Levin et al., 2002; Breitung, 2000).

The ADF unit root test was used to test whether the statistical data that were used in the analysis section were stationary (Kok & Ersoy, 2009). A stationary process is a stochastic process whose joint probability distribution is fixed when shifted in time (Okereke & Ebulison, 2016).

The Phillips-Perron test (PP) was used to check whether the results were consistent with the ADF test. This test is comparable to the ADF test but integrates an automatic correction to the ADF process to allow for auto correlated residuals (Agbola, 2013). That is, the PP test employs nonparametric approaches to take care of the serial correlation in the error terms without adding lagged difference terms. Thus the test is necessary as it allows that error disturbances are heterogeneously distributed and weakly dependent (Agbola, 2013). The PP test does not require the disturbance term to be serially similar; it allows dependence and heterogeneity of disturbances of either autoregressive (AR) or moving average (MA) form (Okereke & Ebulison, 2016).

3.8.2 Panel co-integration test

The study of cointegration has long been a popular area of research. It is popular in the sense that several economic panel series are difference stationary. Generally, a regression incorporating the level of these series produces unreliable results as most tests spuriously show a significant relationship between unrelated series (Paramati et al., 2016).

3.8.3 Methods employed in the panel data model

Panel data analysis includes five different methods: fixed effects, random effects, pooled OLS, fully modified ordinary least squares (FMOLS) and dynamic GMM estimation techniques. This study used all these five methods to incorporate the best fit of the estimation.

The pooled OLS, also called the common constant method of estimation, presents results on the principal assumption that there is no difference between the data matrices of the cross-sectional dimension. The model estimates the pooled OLS for all cross-sections. This is fruitful under the hypothesis that the data set is a priori similar (Vijayakumar et al., 2010). The fixed effects method, also known as the Least Squares Dummy Variables (LSDV), treats the constant group as a section or group, specific as it allows for different constants for each group or section. The fixed effects allow for different constants for each group and the LSDV includes a dummy variable for each section.

The random effects method is an alternative model of estimation, which handles the constants for each section as random limitations rather than fixed. Vijayakumar et al. (2010) argue that one of the obvious disadvantages of the random effects approach is that it requires making specific assumptions about the distribution of the random element. If the unobserved group-specific effects correlate with the explanatory variable, then the estimates will be prejudiced and unpredictable. The advantage of the random effects model approach is that there are fewer limitations to estimate when compared to the fixed effects method, and it allows for additional explanatory variables that have equal value for all observations within a group. Random effects have more estimation advantages than the pooled OLS method since the data classification seems to be a priori similar.

The dynamic GMM technique was employed in the present study to identify and compare the FDI determinants. The GMM panel estimator was first proposed by Holtz-Eakin et al. (1988) and later extended by Arellano and Bond (1991). There are at least two reasons for selecting this estimator: firstly it is used to control for country specific effects, which cannot be done by using country-specific dummies owing to the dynamic structure of the regression equation. Secondly, the estimator controls for a simultaneity prejudice caused by the possibility that some explanatory variables may be endogenous (Azman-Saini et al., 2010). Asiedu and Lien (2011) employed GMM; the estimator includes lagged differences of the endogenous variables as instruments for the level equation, but the difference estimations do not. The GMM system estimator has one disadvantage in that it uses too many instruments.

3.9 ROBUSTNESS TESTS

Macro-economic variables do not have an instant effect on each other (Matthew & Johnson, 2014). Equation 3.5 below is a representation of a scenario in which it is assumed that the independent variable takes about one year to influence the dependent variable:

$$FDI_{i,t} = \beta_0 + \beta_1 HCD_{i,t-1} + \beta_2 FIN_{i,t-1} + \beta_3 (HCD_{i,t-1}. FIN_{i,t-1}) + \beta_4 INFR_{i,t-1} + \beta_5 GR_{i,t-1} + \beta_6 OPEN_{i,t-1} + \beta_7 NAT_{i,t-1} + \beta_8 UNEMP_{i,t-1} + \beta_9 EXCH_{i,t-1} + \beta_{10} GCNS_{i,t-1} + \beta_{11} POP_{i,t-1} + \mu + \varepsilon \quad [3.6]$$

As in Matthew and Johnson's (2014) study, the current study used the lagged independent variable approach (t-1) to ensure robustness of the results. FMOLS, pooled OLS, fixed and random effects were used to estimate equation 3.6.

3.10 CHAPTER CONCLUSION

This chapter presented a discussion of the methodology of the study. It covered a general model specification, the variables and the estimation techniques used in the pursuit of analysing and investigating the key determinants of FDI inflows from African countries perspective. The model estimate includes a number of variables, which are essential determinants of FDI inflows into Africa. The dynamic GMM technique was selected and discussed as the testing technique to establish the key FDI determinants and the variables of interest in African countries. The dynamic GMM estimator was also used to analyse the key FDI determinants in Africa. Diagnostic tests will also were conducted to check the model's acceptability. Thus the contents of this chapter provide a basis for the actual estimations of the study, which are presented in Chapter 4.

CHAPTER 4: DATA ANALYSIS, RESULTS DISCUSSION AND INTERPRETATION

4.1 CHAPTER INTRODUCTION

Chapter 3 established an econometric estimation technique suitable to address the objectives and the problem statement of the study as presented in Chapter 1. The current chapter reports, discusses and interprets the results generated by the selected econometric estimation technique according to the objectives of the study. Pre-estimation diagnostics were performed to understand the nature of the data being used prior to the main data analysis. The remainder of this chapter is organised as follows: section 4.2 discusses the pre-estimation diagnostics. These include mean and overall mean trend analysis of all the variables used in the study, descriptive statistics and correlation analysis. Section 4.3 discusses the main data analysis, which includes the panel root test, panel co-integration test and data analysis using fixed effects, random effects, pooled OLS, FMOLS and dynamic GMM. Results from robustness tests using the lagged independent variables model are also presented, discussed and interpreted in this section. Section 4.4 summarises the chapter.

4.2 PRE-ESTIMATION DIAGNOSTICS

Correlation analysis, descriptive statistics and mean versus overall mean analysis were performed in order to understand the nature and character of the data before using them for the main data analysis. Aye and Edoja (2017) argue that this is necessary in order to ensure that the data used for the main analysis are in a form that avoids spurious results that might be misleading.

4.2.1 Correlation analysis

Table 4 presents the results of correlation analysis between all variables included in the study.

Table 1: Correlation analysis

	FDI	HCD	INF	GR	OPEN	NAT	FIN	UNEM	EXCH	GCNS	POP
FDI	1.00										
HCD	-0.04	1.00									
INF	-0.12*	0.55***	1.00								
GR	-0.06	0.53***	0.58***	1.00							
OPEN	0.47***	0.27***	0.43***	0.39***	1.00						
NAT	0.05	-0.19***	-0.28***	0.18***	0.01	1.00					
FIN	0.01	0.64***	0.79***	0.45***	0.42***	-0.43***	1.00				
UNEM	0.26***	0.32***	0.50***	0.65***	0.44***	-0.12*	0.53***	1.00			
EXCH	-0.02	-0.36***	-0.43***	-0.32***	-0.17***	0.19***	-0.41***	-0.53***	1.00		
GCNS	0.12**	0.20***	0.35***	0.20***	0.32***	-0.13**	0.49***	0.33***	-0.16**	1.00	
POP	0.15**	-0.38***	-0.70***	-0.30***	-0.13**	0.42***	-0.63***	-0.36***	0.43***	-0.08	1.00

Note: ***/**/* denotes statistical significance at the 1%/5%/10% level respectively.
Source: Author compilation from E-Views

The correlation results shown in Table 4 can be grouped into four categories. A negative but insignificant relationship between (1) human capital development and FDI, (2) economic growth and FDI and (3) exchange rates and FDI was detected. A significant negative relationship was observed between inflation and FDI. In addition, the correlation analysis revealed that a significant positive relationship existed between the following variables: trade openness and FDI, unemployment and FDI, government final consumption expenditure and FDI and population growth and FDI. Last but not least, natural resources and financial development were both found to be positively but insignificantly related to FDI. All these findings are in line with the theoretical intuition presented in the preceding chapter.

The weakness of correlation studies is that they do not show the direction of the relationship, hence the results cannot be used for policy making recommendations. It is

against this backdrop that the current study treats correlation analysis only as part of pre-estimation diagnostics. It was used specifically to determine whether there was a multi-collinearity problem in the data, in order to take corrective action before being used in main data analysis. The absolute maximum correlation figure in Table 4 is 79%, found in the relationship between infrastructure and financial development. This, according to Stead (1996), is evidence that a multi-collinearity problem did not exist between or among the variables used in the current study.

4.2.2 Descriptive statistics

Table 5: Descriptive statistics

	FDI	HCD	INFR	GR	OPEN	NAT	FIN	UNEM	EXCH	GCNS	POP
Mean	3.64	10.38	2.97	2 013	64.78	12.16	23.93	9.73	394.88	15.39	2.34
Median	2.29	5.50	1.11	977.40	64.37	8.59	15.04	6.50	264.15	15.15	2.61
Maximum	41.81	57.08	12.45	10 716	125.48	44.64	78.29	27.12	2 934	31.57	3.46
Minimum	0.01	0.13	0.01	113	19.10	0.35	0.75	0.60	0.87	4.58	0.21
Range	41.80	56.95	12.44	10 603	106.38	44.29	77.54	26.52	2 933	26.99	3.25
Range	41.80	56.95	12.44	10 603	106.38	44.29	77.54	26.52	2 933	26.99	3.25
Standard. deviation	5.03	12.90	3.55	2 255	21.78	10.14	19.76	7.24	512.85	5.19	0.75
Skewness	4.47	1.92	1.23	1.66	0.31	1.23	1.35	0.75	2.09	0.28	-0.76
Kurtosis	28.82	6.13	3.15	5.27	2.60	3.64	3.57	2.29	7.97	2.88	2.50
Jarque-Bera	8 089	265.1	65.66	174.9	5.86	69.74	82.08	29.77	457.26	3.55	27.54
Probability	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.17	0.00
Observations	260	260	260	260	260	260	260	260	260	260	260

Source: Author compilation from E-Views

The existence of outliers in the data is can be determined in two ways (refer to Table 5). Firstly, the large size of the range values for economic growth, trade openness and exchange rates data is evidence that abnormal values or outliers existed in these variables. Tsaurai (2018c:77) argues that a standard deviation value that is above a 1000 shows that abnormal values exist in such variables. Following such an argument, there were outliers or abnormal values only in the economic growth data.

Secondly, data for variables such as infrastructural development, trade openness and government final consumption expenditure is normally distributed because its kurtosis values are very close to 3 (Stead, 2007). On the other hand, the probability of the Jarque-Bera criteria for FDI, human capital development, infrastructure development, economic growth, natural resources, financial development, unemployment, exchange rates and population growth is equal to zero. This is evidence that the data for these variables were not normally distributed, consistent with Tsaurai (2018d:96).

4.2.3 Mean and overall mean trend analysis

Table 6 shows the mean and overall mean of the variables used per country during in the period 2003–2015.

South Africa, Cameroon, Central African Republic, Burkina Faso, Nigeria, Senegal, Algeria, Morocco, Tunisia, Burundi, Comoros, Kenya and Rwanda are the African countries that recorded the lowest mean FDI, below the overall mean of 3.64% of GDP. Mozambique was the only outlier in as far as FDI data was concerned because its mean FDI over this period was well above the overall mean of 3.64% of GDP. Countries whose mean human capital development index was above the overall mean human capital development index of 10.38 included South Africa, Gabon, Nigeria, Algeria, Morocco, Sudan and Tunisia. South Africa, Morocco, and Tunisia were the outliers because their mean human capital development index far exceeded the overall mean human capital development index for all African countries studied. Madagascar, Central African Republic, Democratic Republic of Congo and Burundi were also outliers by virtue of the fact that their mean human capital development index was far lower than the overall mean human capital development index for all African countries included in the study.

In terms of infrastructural development, Namibia, South Africa, Algeria, Morocco and Comoros had a mean infrastructural development above the overall mean infrastructural development of 2.97 fixed telephone subscriptions per 100 people; the remaining African nations included in the study had a mean infrastructure development below the

overall mean level. Namibia, South Africa, Algeria and Morocco were outliers as their mean infrastructural development level was far higher than the overall mean for infrastructural development.

Table 6: Mean and overall mean trends of variables for African countries (2003-–2015)

	FDI	HCD	INFR	GR	OPEN	NAT	FIN	UNEM	EXCH	GCNS	POP
SA countries											
Namibia	6.23	9.48	7.07	4 447	101.83	2.58	48.33	20.98	8.24	23.30	1.63
South Africa	1.48	23.34	9.13	6 036	59.62	6.62	69.34	24.25	8.23	19.56	1.25
Madagascar	6.62	1.76	0.62	386.23	73.02	7.88	10.90	2.55	2 050	9.79	2.83
Mozambique	16.10	4.30	0.34	464.13	86.57	10.11	19.49	22.57	28.10	19.96	2.93
CA countries											
Cameroon	1.56	6.07	2.31	1 270	52.90	8.38	11.06	4.22	508.98	11.50	2.70
Central African Republic	1.94	1.70	0.11	389.63	37.61	10.69	9.24	6.28	508.98	8.22	1.16
Democratic Republic of Congo	6.17	1.14	0.03	326.69	69.63	31.61	3.75	3.69	703.74	9.92	3.27
Gabon	3.84	16.01	1.90	8 200	84.83	33.31	10.81	19.00	508.98	14.09	3.07
WA countries											
Burkina Faso	1.40	3.36	0.77	540.46	47.12	12.76	17.34	4.46	508.98	21.38	2.98
Ghana	6.15	9.26	1.21	1 134	83.98	14.23	15.05	4.19	1.56	14.60	2.50
Nigeria	2.57	10.85	0.63	1 776	50.24	20.23	17.75	4.12	145.02	8.10	2.63
Senegal	2.40	9.19	2.30	936.10	71.50	4.04	24.81	8.65	508.98	14.57	2.81
NA countries											
Algeria	1.11	14.36	8.05	4 194	67.54	21.19	14.42	12.82	75.95	16.23	1.69
Morocco	2.80	36.09	7.66	2 618	74.94	2.48	58.41	9.79	8.60	18.44	1.27
Sudan	3.85	12.77	1.54	1 379	34.19	12.89	10.21	13.04	3.17	10.85	2.29
Tunisia	3.29	28.63	11.1	3 807	98.12	5.26	63.50	14.42	1.44	17.44	1.03
EA countries											
Burundi	0.70	1.15	0.32	213.98	42.62	25.43	16.66	1.61	1 262	23.88	3.18
Comoros	1.20	4.07	3.18	732.99	62.65	2.91	15.21	4.46	381.73	15.36	2.39
Kenya	1.15	8.11	0.85	908.65	55.15	3.51	27.79	11.31	80.11	15.20	2.71
Rwanda	2.17	5.97	0.31	499.11	41.58	7.09	14.56	2.15	594.92	15.41	2.38

Overall mean	**3.64**	**10.38**	**2.97**	**2 013**	**64.78**	**12.16**	**23.93**	**9.73**	**394.88**	**15.39**	**2.34**

Source: Author compilation

The mean GDP per capita (proxy for economic growth) for Namibia, South Africa, Gabon, Algeria, Morocco and Tunisia exceeded the overall mean GDP per capita of 2 013 US Dollars for all African nations in the study. All these African countries, with the exception of Nigeria, were outliers as there was a very high standard deviation between the mean GDP per capita for each country and the overall mean GDP per capita.

Ten African countries whose who mean trade openness exceeded the overall mean for trade openness of 64.78% of GDP included Namibia, Madagascar, Mozambique, Democratic Republic of Congo, Gabon, Ghana, Senegal, Algeria, Morocco and Tunisia. Namibia and Tunisia were outliers as their mean trade openness was much higher than the overall mean trade openness for all African countries studied. This study found that the mean trade openness level for all Eastern African countries was lower than the overall mean trade openness for all African countries.

With regard to natural resources, the Democratic Republic of Congo, Gabon, Burkina Faso, Ghana, Nigeria, Algeria, Sudan and Burundi recorded the highest mean above the overall mean total for natural resources rent of 12.16% of GDP. The Democratic Republic of Congo, Gabon and Burundi were outliers owing to the size of their total natural resources rents as a ratio of GDP; this was well above the overall mean. Only six African countries had a mean domestic credit to private sector by banks ratio (FIN) above the overall mean of 23.93% of GDP, namely Namibia, South Africa, Senegal, Morocco, Tunisia and Kenya. Namibia, South Africa, Morocco, Tunisia, Kenya, Madagascar, Cameroon, Central African Republic, Democratic Republic of Congo, Gabon and Sudan were all outliers because their mean domestic credit to private sector by banks ratio exceeded the overall mean by a very wide margin.

Namibia, South Africa, Mozambique, Gabon, Algeria, Morocco, Sudan, Tunisia and Kenya had mean unemployment rates above the overall mean unemployment rate for all African countries studied, which was equivalent to 9.73% of total labour force. Comparing the level of mean unemployment rates for individual African countries to the

overall mean for all African countries in the study revealed that the gap between these two statistics was widest in the case of Namibia, South Africa and Mozambique. They were thus outliers.

The overall mean exchange rate for African countries studied was 394.88 USD. African countries whose mean exchange rates exceeded this included Madagascar, Cameroon, Central African Republic, Democratic Republic of Congo, Gabon, Burkina Faso, Senegal and Rwanda. Those that constituted outliers because the difference between their mean exchange rates and the overall mean for all African countries in the study were Namibia, South Africa, Madagascar, Mozambique, Democratic Republic of Congo, Ghana, Nigeria, Algeria, Morocco, Sudan, Tunisia, Burundi, Kenya and Rwanda.

The mean government final consumption expenditure of Namibia, South Africa, Mozambique, Burkina Faso, Algeria, Morocco, Tunisia, Burundi and Rwanda was above the overall mean government total final consumption expenditure of 15.39% of GDP. The mean population growth for Namibia, South Africa, Central African Republic, Algeria, Morocco, Sudan and Tunisia was below the overall mean population growth of 2.34% for all African countries in the study. There were no outliers with regard to government total final consumption expenditure and population growth figures as all the mean values for individual countries were close to the overall mean values for all African countries in the study.

4.3 MAIN DATA ANALYSIS AND DISCUSSION OF RESULTS

The main data analysis process comprised four steps, namely (1) panel root tests, (2) panel co-integration tests, (3) main data analysis using panel data analysis estimation approaches such as fixed effects, random effects, pooled OLS, FMOLS and dynamic GMM and (4) robustness tests using the lagged independent variable model (t-1).

4.3.1 Panel root tests

Panel unit root tests were conducted at individual intercept using the E-Views 8 data analysis software (see results in Table 4).

Table 7: Panel root tests – Individual intercept				
Level				
	LLC	IPS	ADF	PP
LFDI	-2.3296***	-0.4567	46.0237	95.8614***
LHCD	1.3638	4.6339	21.3493	61.3003
LINFR	-1.7164**	0.3307	38.8661	45.1579
LGR	-2.0942**	-2.2130**	-1.4238**	37.397***
LOPEN	-2.6873***	-1.0323	52.5426*	55.0609*
LNAT	-0.0684	1.0032	35.3700	46.6386
LFIN	-1.7318**	1.5840	30.8369	28.3600
LUNEMP	-1.4112*	1.0791	36.2588	47.0836
LEXCH	4.8587	4.6669	12.7037	24.0061
LGCNS	1.3485	1.4077	35.2204	39.0103
LPOP	-14.5654***	-7.8258***	120.715***	49.0491
First difference				
LFDI	-4.7264***	-4.8565***	94.3093***	258.387***
LHCD	-17.2694***	-5.8058***	91.9260***	133.285***
LINFR	-3.1820***	-2.1980**	62.0975**	121.965***
LGR	-7.2336***	-5.8327***	-5.2317***	108.9724***
LOPEN	-5.9340***	-3.9548***	82.7109***	154.909***
LNAT	-3.8560***	-2.9904***	65.9507***	170.252***
LFIN	-4.5271***	-3.2382***	70.6145***	132.684***
LUNEMP	-2.6148***	-2.0173**	57.6144**	129.852***
LEXCH	-1.8903**	-1.6184*	48.1815*	79.8698***
LGCNS	-4.4040***	-3.6821***	76.4868***	180.802***
LPOP	-23.1004***	-11.1936***	186.2104***	123.0935**

Note: LLC, IPS, ADF and PP stand for Levin, Lin and Chu (2002), Im, Pesaran and Shin (2003), ADF for Fisher Chi Square and PP for Fisher Chi Square tests respectively. *, ** and *** denote 10%, 5% and 1% levels of significance, respectively.

Source: Author's compilation from E-Views

As in Jiang and Liu's (2014) study, results in Table 7 at level show that the data for some variables were not stationary. In contrast, the data for all the variables at first difference were stationary. As Tsaurai (2017a) found, this finding satisfied the requirements for the administration of panel co-integration tests. Table 5 shows the results of Kao residual panel co-integration tests.

4.3.2 Panel co-integration tests

The Kao residual co-integration test was used to test whether the variables being studied were co-integrated or not (see results in Table 8).

Table 8: Kao Residual Co-integration Test – Individual intercept

	T-statistic	Probability
Augmented Dickey-Fuller (ADF)	1.3647	0.0862

Source: Author's compilation from E-Views

Using the Newey-West automatic bandwidth selection and quadratic spectral estimation criterion, the null hypothesis, which stated that there was no co-integration, was rejected at the 10% significant level. This finding was evidence that there was a long-run relationship between or among the variables (FDI, HCD, FIN, GR, OPEN, NAT, INFR, UNEMP, EXCH, GCNS, POP) in the study.

4.3.3 Data analysis

The only difference between models 1 and 2 was that the used domestic credit to private sector by banks (% of GDP) as a proxy of financial development while the latter used broad money (% of GDP) to measure financial development.

Table 9: Main data analysis – Model 1					
	Fixed effects	**Random effects**	**Pooled OLS**	**Fully modified OLS (FMOLS)**	**Dynamic GMM**
$FDI_{i,t-1}$	-	-	-	-	0.4826***
HCD	-0.5042	0.1704	0.3339*	-0.6097*	0.0954
FIN	-0.0965	-0.2246	-0.2313	-0.0814	-0.0317
HCD.FIN	0.1128	-0.0083	-0.0409	0.1728*	-0.0276
INFR	0.2098	-0.1494	-0.2745***	0.4418***	-0.1452**
GR	1.5952***	0.3997*	0.0708	1.7781***	0.0989
OPEN	2.6477***	2.2175***	2.0324***	3.1334***	1.1568***
NAT	-0.4188**	-0.2071	-0.2695***	-0.6560***	-0.1695*
UNEMP	0.1262	-0.0693	0.1867	0.1438	0.0594
EXCH	0.3673	-0.0944	-0.1736***	0.2004	-0.0958**
GCNS	-0.7235	-0.7437*	-0.9896***	-1.1956**	-0.6105**
POP	-0.0691	0.6847**	0.5673**	-0.3944	0.4341**
Number of countries	20	20	20	20	20
Number of observations	260	260	260	260	260
Adjusted R-squared	0.6845	0.5675	0.6428	0.6704	0.7318
F-statistic	18.74	11.74	9.15	13.15	J-static = 247
Prob (F-statistic)	0.00	0.00	0.00	0.00	Prob (J-statistic) =0.00

***, ** and * denote 1%, 5% and 10% levels of significance, respectively.

Source: Author's compilation from E-Views

As can be seen from Table 9 and 10 (model 1 and 2 respectively), the dynamic GMM approach shows that the lag of FDI had a significant positive effect on FDI. This finding is consistent with Walsh and Yu's (2010) study, argued that already established foreign investors enable new investors to enjoy the positive spillover advantages they have already created. These results are similar to those of Barrell and Pain (1999), whose study revealed that new foreign direct investment into the host country is attracted by the existence of other, already existing foreign investment as this sends a signal to prospective foreign investors.

In both models 1 and 2, random effects and the dynamic GMM methods show that human capital development had a non-significant positive impact on FDI in African countries, while human capital development had a significant positive influence on FDI under the pooled OLS approach. This finding echoes that of Majeed and Ahmad (2008), who argue that human capital development is an essential determinant of FDI, particularly for efficiency-seeking FDI that requires a skilled labour force. Human capital development negatively but non-significantly affected FDI under the fixed effects yet had a significant negative impact on FDI using the FMOLS approach in model 1 (refer to Table 6). In model 2 (see Table 7), under both fixed effects and FMOLS, the impact of human capital development on FDI was negative but non-significant. These findings are in line with Kang and Lee's (2007) argument that high labour costs, commonly associated with high levels of human capital development in the host country, push up the cost of conducting business, thereby dissuading FDI inflows.

In contrast to most of the literature (Ezeoha & Cattaneo, 2012; Kaur et al., 2013; Havrylchyk & Poncet, 2007; Guiso et al., 2004; Bartels et al., 2009; Antras et al., 2009; Seghir, 2009), all five panel data analysis methods showed that financial development had a non-significant negative influence on FDI in model 1. On the other hand, financial development was found to have a significant negative effect on FDI in model 2 under the fixed effects, random effects, pooled OLS and FMOLS. The dynamic GMM approach suggested that the influence of financial development on FDI was negative but non-significant. These results are similar to those of Hailu (2010), who argued that FDI is crowded out by developed financial markets, as foreign investors prefer foreign portfolio investment to foreign direct investment when there is a high level of financial development in the host country.

According to the fixed effects, the interaction between human capital and financial development had an insignificant but positive effect on FDI, yet when using the FMOLS approach, FDI was found to have been positively and significantly influenced by the complementarity between human capital and financial development in model 1. In model 2, FDI was found to have been positively but insignificantly affected by the

complementarity between human capital and financial development. These results are consistent with findings from a study by Tsaurai (2018a), which found that the complementarity between (1) human capital development and stock market value traded and (2) human capital development and stock market capitalisation enhanced FDI inflows into emerging markets.

The random effects, pooled OLS and the dynamic GMM showed that the interaction between human capital and financial development had an insignificant negative influence on FDI in both models. However, the size of the interaction term across these three approaches in both models showed that human capital development helped to reduce the negative influence of financial development on FDI. This finding echoes that of Tsaurai (2018a: 33), who found that despite the existence of a negative relationship between the interaction term and FDI, human capital development reduced the overall negative effect of banking sector development on FDI.

Table 10: Main data analysis – Model 2

	Fixed effects	**Random effects**	**Pooled OLS**	**Fully modified OLS (FMOLS)**	**Dynamic GMM**
$FDI_{i,t-1}$	-	-	-	-	0.4680***
HCD	-0.0303	0.4853	0.5062**	-0.3029	0.2668
FIN	-1.2181**	-1.1086**	-0.7275**	-1.6529**	-0.3325
HCD.FIN	0.0109	-0.0631	-0.0567	0.1286	-0.0532
INFR	0.1697	-0.0641	-0.1654*	0.4047**	-0.0878*
GR	1.2996***	0.3131	-0.0680	1.4818***	0.0196
OPEN	2.8495***	2.3769***	2.0972***	2.8714***	1.2290***
NAT	-0.3194	-0.2294	-0.2408**	-0.5799**	-0.1680**
UNEMP	0.1960	0.0059	0.2544*	0.2478	0.0965
EXCH	0.3349	-0.1261	-0.1632***	0.0952	-0.0945**
GCNS	-0.3087	-0.3914	-0.8491***	-0.6736	-0.4943**
POP	0.0970	0.5225*	0.3467	-0.2549	0.2870
Number of countries	20	20	20	20	20
Number of	260	260	260	260	260

observations					
Adjusted R-squared	0.6545	0.5492	0.6613	0.6611	0.7217
F-statistic	21.74	11.83	9.01	11.23	J-static = 218
Prob (F-statistic)	0.00	0.00	0.00	0.00	Prob (F-statistic) =0.00

***, ** and * denote 1%, 5% and 10% levels of significance, respectively.

Source: Author's compilation from E-Views

Fixed effects showed that infrastructure had a positive but non-significant influence on FDI, whereas FDI was found to have been positively and significantly affected by infrastructural development under the FMOLS method in both models. The findings are in line with Adams's (2009) argument that an environment conducive to business as characterised by the existence of good policies and high infrastructural development attracts FDI through promoting linkages between domestic investment and foreign investment.

Infrastructure was found to have had a non-significant negative influence on FDI under the random effects; it had a significant, negative effect on FDI under the pooled OLS and the dynamic GMM approaches in both models 1 and 2, however. This finding supports Tsaurai's (2017b) view that infrastructural development has a negative effect on FDI because countries whose level of infrastructural development is high generally have enough organic capital to undertake their economic growth projects without having to rely on foreign investors' capital injections.

Under the FMOLS, fixed and random effects, economic growth was found to have had a significant, positive influence on FDI, yet pooled OLS and dynamic GMM showed that economic growth had a non-significant positive effect on FDI in both models. A significant positive relationship running from economic growth to FDI was detected in model 2 under both the fixed effects and the FMOLS methods. Moreover, FDI was found to have been positively but insignificantly affected by economic growth in model 2 under the random effects and the dynamic GMM. These findings are reminiscent of Jorgenson's (1963) market size hypothesis and of Denisia (2010), who revealed that one of the locational advantages of FDI in the host country is economic growth. As in

Tsai (1994) and Jensen (2003), who argued that host countries whose FDI grow at a slower rate than economic growth experience a decrease in FDI as a ratio of GDP, pooled OLS in model 2 showed that economic growth had a non-significant negative influence on FDI.

Results of all five panel data analysis methods used in the current study revealed that trade openness in both models 1 and 2 had had a significant positive effect on FDI, supporting Buthe and Milner's (2008) view that foreign investors feel secure when they are operating in host countries whose trade openness is high as they can easily repatriate profits or move their investment from one country to another.

In both models, natural resources had a significant negative influence on FDI under pooled OLS, FMOLS and the dynamic GMM methods. On the other hand, a non-significant negative relationship running from natural resources to FDI was detected under the random effects approach in both models. Natural resources had a significant negative influence on FDI under fixed effects in model 1 while in model 2 under the fixed effects approach the negative effect of natural resources on FDI was non-significant. Although this finding contradicts the majority of the literature on the subject, it is similar to that of Poelhekke and Van der Ploeg (2013), whose study found that natural resources had a deleterious effect on non-resource sector FDI.

In both models, fixed effects, FMOLS and dynamic GMM approaches showed that unemployment in African countries had a non-significant but positive impact on FDI. Model 1, under the pooled OLS, and model 2 under the random effects showed that the influence of unemployment on FDI was positive but insignificant. On the other hand, unemployment was found to have had a significant positive impact on FDI in model 2 under the pooled OLS method. These findings support Head et al.'s (1999) perspective that high levels of unemployment attract foreign investors as they guarantee the ready availability of a cheap labour force. Using the random effects approach in model 1, FDI was found to have been negatively but non-significantly affected by unemployment. This finding is in line with Jorgenson's (1963) market size hypothesis, which states that FDI

is attracted by high potential sales volume in the host country, a scenario that can be guaranteed if the host country's unemployment rate is low.

Exchange rates were found to have had a non-significant positive impact on FDI under the fixed effects and the FMOLS approaches in models 1 and 2. These results support the view shared by Ma and Kao (1990) that the advantage of a host country having a strong currency is that foreign investors are attracted as they expect to achieve a higher rate of return after the payoff has been converted into the home currency. Under the pooled and dynamic GMM estimation frameworks, exchange rates had a significant negative influence on FDI yet the random effects approach showed that the impact of exchange rates on FDI was negative but non-significant in both models. This finding contradicts Aliber's (1970) argument that a host country's weak currency attracts FDI while a strong currency in the host country deters FDI.

Random effects, pooled OLS, FMOLS and dynamic GMM methods produced results that showed that government consumption had a significant negative influence on FDI in model 1. A similar finding was observed in model 2 under the pooled OLS and the dynamic GMM approaches. A non-significant negative relationship running from government expenditure to FDI was detected in model 2 under the FMOLS, fixed and random effects, and in model 1 under the fixed effects approach. These results support Husnain et al.'s (2011) view that increased participation in economic activities by the government stifles not only FDI inflows but also the ability of the host country to benefit from FDI.

Both model 1 and 2 showed that population growth had a non-significant negative effect on FDI under the FMOLS approach. The same finding was observed in model 1 under the fixed effects method, in line with Ithiga's (2013) implication that population growth has a deleterious influence on FDI, especially in cases where foreign investors are expected to take a leading role in the development of communities in the areas they do business.

On the other hand, the influence of population growth on FDI was found to be significantly positive under the random effects, pooled OLS and the dynamic GMM in model 1. The same finding was observed in model 2 under the random effects approach. A non-significant positive impact running from population growth to FDI was also observed in model 2 under the fixed effects, pooled OLS and the dynamic GMM. These results support Jorgenson's (1963) argument that higher population growth rates increase market size or the level of the demand for goods and services, thereby attracting more FDI.

4.3.4 Robustness tests using the lagged variable approach

The results from a lagged independent variable approach, presented in Table 11 and 12, are discussed next.

Table 11: The lagged independent variable approach (t-1) – Model 1

	Fixed effects	**Random effects**	**Pooled OLS**	**Fully modified OLS (FMOLS)**
HCD	-0.6980**	0.0049	0.1884	-0.9143***
FIN	0.0209	-0.1475	-0.2847	-0.1124
HCD.FIN	0.1401*	0.0141	-0.0236	0.1978**
INFR	0.2834*	-0.1414	-0.2865***	0.5702***
GR	1.5160***	0.3914	0.1717	1.7755
OPEN	2.1594***	1.8301***	1.7763***	3.1674***
NAT	-0.5259**	-0.2715*	-0.3400***	-0.8164***
UNEMP	0.3807	0.0971	0.2044	0.4092
EXCH	0.5380	-0.0644	-0.1793***	0.6603
GCNS	-0.3741	-0.4449	-0.7941***	-1.0310**
POP	-0.0156	0.8173***	0.6684***	-0.4805
Number of countries	20	20	20	20
Number of observations	260	260	260	260
Adjusted R-squared	0.6916	0.5728	0.6816	0.6937
F-statistic	27.83	11.98	11.27	13.22
Prob (F-statistic)	0.00	0.00	0.00	0.00

***, ** and * denote 1%, 5% and 10% levels of significance, respectively.
Source: Author's compilation from E-Views

Table 11 reflects model 1 results from a lagged independent variable approach, using domestic credit to private sector by banks as a ratio of GDP as a measure of financial development.

Human capital development had a significant negative influence on FDI under the fixed effects and FMOLS (refer to Table 11), consistent with Kang and Lee's (2007) findings. On the other hand, a positive non-significant relationship running from human capital development to FDI was detected under the random effects and pooled OLS, in keeping with Majeed and Ahmad's (2008:6) argument that improved human capital development decreases crime rates, enhances health and civil liberties thereby positively affecting FDI inflows into the host country.

Financial development was found to have had a non-significant positive impact on FDI under the fixed effects approach, as Kaur et al.'s (2013) study that observed that financial development enhances FDI through its ability to (1) reduce exit and entry barriers to foreign investors and (2) increase foreign capital productivity through efficient allocation of resources function. In contrast, an insignificant negative relationship running from financial development to FDI was observed under the random effects, pooled OLS and the FMOLS. These findings reflect those of Tsaurai (2017b:144), who found that public bond sector development had a negative influence on FDI in emerging markets.

The complementarity between human capital and financial development had a significantly positive effect on FDI under the fixed effects and FMOLS, while FDI was positively but insignificantly influenced by the interaction term, a finding which echoes Tsaurai's (2018a) observations. Under pooled OLS, a non-significant negative relationship running from the interaction between human capital and financial development to FDI was detected, consistent with a finding from a study by Tsaurai (2018a:33).

Contrary to the majority of theoretical and empirical literature, a significant positive relationship running from infrastructural development to FDI was observed under the fixed effects and the FMOLS. This finding is however akin to those of prior empirical studies on a similar subject by Kinda (2010), Asiedu (2002), Ranjan and Agrawal (2011), among others. Random effects show that FDI was negatively but insignificantly affected by infrastructural development under the random effects approach yet it had a significant negative effect on FDI under the pooled OLS approach. This finding is in line with Tsaurai's (2017b: 148), whose study observed that host countries whose infrastructural development levels were high were likely to have enough organic capital to implement economic growth projects without having to depend on foreign capital.

Economic growth was found to have had a significant positive impact on FDI under the fixed effects, while an insignificant positive relationship running from economic growth to FDI was observed under the random effects, pooled OLS and the FMOLS. These results support Denisia's (2010) view that economic growth in the host country is one of the locational advantages for FDI.

Consistent with Dunning's (1973) eclectic paradigm hypothesis, which states that trade openness is one of the locational advantages of FDI, trade openness was found to have had a significant, positive impact on FDI under the fixed effects, random effects, pooled OLS and the FMOLS methods. The present study also showed the existence of a significant negative relationship running from natural resources to FDI under the pooled OLS, FMOLS, fixed and random effects, in line with Poelhekke and Van der Ploeg's (2013) findings.

Unemployment was found to have had an insignificant positive effect on FDI across all the four panel data analysis methods (fixed effects, pooled OLS, FMOLS, and random effects) used for robustness checks. Although this contradicts Jorgenson's (1963) market size hypothesis, the finding resonates with an argument by Head et al. (1999), that foreign investors are lured into a country by high levels of unemployment as such a scenario guarantees the ready availability of a cheap labour force.

As in Kiyota and Urata's (2004) view that the depreciation of the host country's currency reduces the cost of setting up production facilities in the host country and increases FDI inflow, a non-significant positive relationship running from exchange rates to FDI was observed under the fixed effects and FMOLS approach. Under the random effects approach, exchange rates were found to have had a non-significant negative effect on FDI while the results under the pooled OLS showed that exchange rates had a significant negative influence on FDI. These finding were similar to Ma and Kaos (1990) conclusions.

Government consumption was found to have had a significant negative impact on FDI under the pooled OLS and the FMOLS yet the fixed and random effects showed the existence of a uni-directional relationship running from government final consumption expenditure to FDI. These results support the view of Husnain et al. (2011) in as far as the negative impact on foreign investment of active involvement by government in the economy is concerned.

A significant, positive unidirectional relationship running from population growth to FDI was detected under the random effects and pooled OLS in support of the view advanced by Jorgenson (1963) that higher levels of population growth in the host country increase the market size (customer base), which consequently attracts FDI. On the other hand, a negative but insignificant impact of population growth on FDI was detected under the fixed effects and the FMOLS approaches, as in a study by Ithiga (2013).

Table 12: The lagged independent variable approach (t-1) – Model 2

	Fixed effects	**Random effects**	**Pooled OLS**	**Fully modified OLS (FMOLS)**
HCD	-0.2901	0.3094	0.3423	-0.3843
FIN	-1.5477***	-1.4038***	-0.8891***	-1.7591***
HCD.FIN	0.0629	-0.0241	-0.0266	0.0839
INFR	0.2661	-0.0108	-0.1557	0.5407***
GR	1.2649***	0.2681	-0.0068	1.5011***

OPEN	2.4663***	2.0718***	1.8789***	2.4587***
NAT	-0.3909*	-0.3029**	-0.3079***	-0.6389**
UNEMP	0.5915*	0.2038	0.2728**	0.5275
EXCH	0.5112	-0.0994	-0.1652***	0.5112
GCNS	0.2237	0.0625	-0.6276**	-0.4036
POP	0.0214	0.5575*	0.4118*	-0.3024
Number of countries	20	20	20	20
Number of observations	260	260	260	260
Adjusted R-squared	0.6664	56.62	0.6718	0.7127
F-statistic	20.57	14.05	10.14	18.02
Prob (F-statistic)	0.00	0.00	0.00	0.00

***, ** and * denote 1%, 5% and 10% levels of significance, respectively.

Source: Author's compilation from E-Views

Table 12 reflects model 2 results from a lagged independent variable approach. Broad money (% of GDP) was used as a proxy of financial development. Table 12 shows that human capital development had a non-significant positive effect on FDI under the random effects and the pooled OLS, a finding that echoes that of Craigwell (2012), who argued that high human capital development increases FDI-linked technological spillovers by helping domestic firms to take advantage of new technology. In support of an argument advanced by Kang and Lee (2007), a non-significant negative relationship running from human capital development to FDI was observed under the fixed effects and FMOLS.

A significant negative influence of financial development on FDI was observed under the FMOLS, pooled OLS, fixed and random effects, in line with Hailu (2010:109) whose study found that FDI is crowded out by high levels of financial development. The explanation proposed by Hailu (2010) is that when the levels of financial development are very high in the host country, foreign investors prefer portfolio investments rather than FDI.

Fixed effects and FMOLS showed that the complementarity between human capital and financial development had a non-significant but positive influence on FDI. The result is similar to Tsaurai's (2018a) findings. Contrary to theoretical predictions, the interaction between human capital and financial development had an insignificant negative impact on FDI under the random effects and the pooled OLS. However, a closer look at the size and sign of the interaction term indicated that human capital development reduced the negative influence of financial development on FDI under the random effects and pooled OLS, consistent with Tsaurai (2018a:34).

Infrastructural development had an insignificant positive effect on FDI under the fixed effects while the FMOLS showed that infrastructural development had a significant positive influence on FDI. These findings support a theoretical view propounded by Wang and Xie (2009), which held that high levels of infrastructural development allowed a host country to benefit from the technological spillover from FDI. Contrary to pronouncements by the majority of the literature on this subject but consistent with Tsaurai (2017b), a non-significant negative relationship running from infrastructural development to FDI was noted under the random effects and the pooled OLS methods.

Economic growth was found to have had a significant positive effect on FDI under the fixed effects and the FMOLS methods while the random effects revealed the existence of a uni-directional non-significant positive relationship running from economic growth to FDI. These results are in keeping with those of Moosa (2010:483), who noted that a larger market size as measured by GDP attracts FDI. In contrast, FDI was found to have been negatively but non-significantly affected by economic growth under the pooled OLS, in line with Iamsiraroj and Doucouliagos (2015), whose study found that the impact of economic growth on FDI can be either positive or negative.

The impact of trade openness on FDI was found to be positive and significant under the FMOLS, pooled OLS, fixed and random effects methods. Such a finding supports an argument by Cuadros et al. (2004), who found that FDI technological benefits and spillovers were generally enjoyed by host countries whose trade openness level was high. A significant negative influence of natural resources on FDI under the four panel

data analysis methods (pooled OLS, FMOLS, random and fixed effects) was found, consistent with Poelhekke and Van der Ploeg's (2013) finding that natural resources have a negating effect on FDI.

A significant, positive uni-directional relationship running from unemployment to FDI was observed under the fixed effects and pooled OLS. On the other hand, the random effects and the FMOLS revealed that unemployment had an insignificant positive effect on FDI. These findings contradict the established view in the literature that high unemployment reduces the market size, thereby deterring FDI (Jorgenson. 1963).

Under the pooled OLS approach, exchange rates had a significant negative influence on FDI; the random effects method, on the other hand, showed a negative but insignificant relationship running from exchange rates to FDI. These results echo those of Ma and Kao (1990), whose findings were that weak currency in the host country is associated with low rates of return, a scenario that discourages prospective foreign investors. Conversely, exchange rates were found to have had an insignificant positive impact on FDI under the fixed effects and the FMOLS estimation methods, a finding that supported Aliber's (1970) explanation.

Consistent with Lee and Suruga (2005), whose study observed that long-term investment into infrastructural development projects enhances FDI inflows, government consumption was found to have had a non-significant positive effect on FDI under the fixed and random effects methods. A significant negative impact of government consumption on FDI was observed under the pooled OLS whilst government consumption had an insignificant negative influence on FDI when FMOLS was used as an estimation method. These findings support Husnain et al.'s (2011) view.

Using the random effects and pooled OLS estimation procedures, population growth had a significant positive effect on FDI, whereas fixed effects produced results that showed that population growth had a non-significant positive impact on FDI. These findings are consistent with those of Tsaurai (2018b), who observed that population growth had a non-significant positive effect on FDI in Southern Africa under the pooled

OLS, fixed and random effects estimation methods. In contrast to most theoretical and empirical research findings on the subject, population growth was found to have had a negative but insignificant influence on FDI under the FMOLS estimation approach.

4. 4 CHAPTER CONCLUSION

This chapter presented and discussed results from the pre-estimation diagnostics, the main data analysis and robustness tests. While the correlation results were found to be in line with existing theoretical literature, the descriptive statistics showed that the data for some variables were abnormal or characterised by extreme values. The problem was addressed by converting all the data sets into natural logarithms, consistent with Aye and Edoja (2017).

The results of the main data analysis in model 9 and 10 presented in Table 7 and 8 respectively showed that 10 variables were found to have had a significant influence on FDI. These were (1) the lag of FDI (dynamic GMM approach), (2) human capital development (FMOLS in model 1 and pooled OLS in model 2), (3) the complementarity between human capital and financial development (FMOLS in model 1), (4) infrastructural development (pooled OLS, FMOLS and dynamic GMM in both models), (5) economic growth (fixed effects and FMOLS in both models and random effects in model 1 only), (6) trade openness (pooled OLS, FMOLS, dynamic GMM, fixed and random effects in both models), (7) natural resources (pooled OLS, FMOLS and dynamic GMM in both models and fixed effects in model 1 only), (8) exchange rates (pooled OLS and dynamic GMM in both models), (9) government final consumption expenditure (pooled OLS and dynamic GMM in both models and random effects and FMOLS in model 1 only) and (10) population growth (random effects in both models and pooled OLS and dynamic GMM in model 1 only).

In summary, main data analysis in models 1 and 2 as presented in Table 9 and 10 respectively obtained the following results: fixed effects revealed that economic growth and trade openness had a significant positive influence on FDI whilst e a significant negative impact of natural resources on FDI was detected under the same approach. A uni-directional, significant, positive causality relationship running from economic growth,

trade openness and population growth towards FDI was also observed under the random effects approach. FDI was negatively but significantly influenced by government final consumption expenditure under the random effects method. Under the pooled OLS method, human capital development, trade openness and population growth had a significant positive effect on FDI, whereas infrastructural development, natural resources, exchange rates and government final consumption expenditure influenced FDI in a significantly negative way.

The FMOLS approach saw FDI being affected by infrastructural development, economic growth and trade openness in a significant, positive manner while individually, human capital development, natural resources and government final consumption expenditure were found to have had a significant negative effect on FDI under the same approach. A significant positive impact of the lag of FDI, trade openness and population growth on FDI was detected under the dynamic GMM approach. The latter approach also indicated that infrastructural development, natural resources, exchange rates and government final consumption expenditure each had a significant negative effect on FDI. The concluding chapter, discusses the contribution of the study, its conclusions, recommendations, limitations and possible topics for future research mainly from the findings of this chapter.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 CHAPTER INTRODUCTION

The objectives of the study were twofold: (1) to investigate the determinants of FDI and (2) to explore if the complementarity between human capital and financial development-enhanced FDI in African countries. These objectives were formulated based on the available theoretical and empirical literature. The preceding chapter addressed these two objectives using five panel data analysis estimation methods, namely pooled OLS, FMOLS, dynamic GMM, fixed and random effects.

This chapter summarises the findings derived from the results obtained in Chapter 4, explains the contribution of this study, discusses the conclusion and recommendations, lists the limitations of the study and makes suggestions for future research. The remaining sections of this chapter are s as follows. Section 5.2 discusses the summary of the findings, Section 5.3 explains the contribution of the study and Section 5.4 provides a conclusion to the whole study, discussing policy implications and making recommendations. Limitations of the study are discussed in Section 5.5 whilst Section 5.6 makes suggestions for further research.

5.2 SUMMARY OF THE RESEARCH FINDINGS

This section reports only those results that were found to be significant (in either direction) because that forms the basis for reaching a conclusion as to which variables are determinants of FDI in Africa. Main data analysis results shown in Table 9 and 10 in the preceding chapter indicated that the lag of FDI had a significant positive impact on FDI, consistent with a view propagated by Walsh and Yu (2010) that new foreign investors' ability to enjoy spillover advantages in the host country is enhanced if other foreign investors already exist in that country.

In models 1 and 2 (Table 9 and 10 respectively), the pooled OLS approach found that human capital development had a significant positive influence on FDI. These results are similar to those of Mastromarco and Ghosh (2009), who noted that the efficiency of FDI in the host country was enhanced by high levels of human capital development in

that country. On the other hand, a significant negative relationship running from human capital development to FDI was observed in model 1 (Table 9) under the FMOLS estimation procedure, consistent with Na and Lightfoot's (2006) view that FDI is negatively affected by high labour costs in the host country, which are normally associated with high levels of human capital development.

FDI was found to have been negatively but significantly affected by financial development in model 2 (Table 10) under the FMOLS, pooled OLS, fixed and random effects methods. This finding supports an argument by Hailu (2010) that high levels of financial development crowd out FDI because foreign investors prefer portfolio investments to FDI when financial markets are developed, efficient and effective.

The complementarity between human capital and financial development was found to have had a significant, positive effect on FDI in model 1 (Table 9) under the FMOLS approach only. This finding is in line with Tsaurai's (2018a) findings that the complementarity between human capital and stock market development enhances FDI inflows into the emerging markets.

Both models 1 and 2 produced results that indicated that infrastructural development had a significant negative influence on FDI under the pooled OLS and dynamic GMM methods, a finding consistent with Tsaurai's (2017b) observations. A significant positive relationship running from infrastructure development to FDI was detected in both models under the FMOLS approach. This finding supports prior empirical research on a similar subject by Fung et al. (2005), Kinda (2010), Asiedu (2002), Ranjan and Agrawal (2011) and Mollick et al. (2006), among others.

A significant, positive causality relationship running from economic growth to FDI was observed in model 1 under the FMOLS, random and fixed effects and also in model 2 under the fixed and FMOLS methods. This finding support the view that high economic growth increases the size of the market and potential sales levels in the economy of the host country, thereby attracting FDI (Jorgenson, 1963). It also supports Denisia's (2010) argument that economic growth in the host country is a locational advantage for FDI.

Across all the five panel data analysis methods used (dynamic GMM, FMOLS, pooled OLS, fixed and random effects), trade openness was found to have had a significant positive effect on FDI in both models. This finding is in line with Cuadros et al. 2004), who explain that FDI's technological advantages and spillovers are more likely to be felt in a host country's by higher levels of trade openness.

Natural resources negatively but significantly affected FDI in model 1 under fixed effects, pooled OLS, FMOLS and dynamic GMM. Similar results were observed in model 2 under the pooled OLS, FMOLS and the dynamic GMM. This finding supports Poelhekke and Van der Ploeg's (2013) observation that natural resources have an adverse influence on non-resource sector FDI.

Consistent with Head et al. (1999), whose study revealed that high levels of unemployment mean that the labour force can be hired at low cost, thereby attracting FDI, unemployment was found to have had a significant positive effect on FDI only in model 2 (see Table 10) under the pooled OLS method. Both models 1 and 2 under pooled OLS and dynamic GMM showed that exchange rates had a significant negative influence on FDI, a finding similar to Aliber's (1970) currency areas hypothesis that held that a host country's weak currency enhances FDI inflows by ensuring that the establishment of production facilities and systems is cheap.

Government final consumption expenditure was found to have had a significant negative influence on FDI in model 1 under the random effects, pooled OLS, FMOLS and the dynamic GMM methods. The same finding was observed in model 2 only under the pooled OLS and dynamic GMM approaches. These findings support Husnain et al.'s (2011) argument that foreign investors view host countries whose governments takes a critical role in directing economic activities as risky investment destinations.

A significant positive relationship running from population growth to FDI was detected in (1) model 1 under the random effects, pooled OLS and dynamic GMM and (2) in model 2 using the random effects approach only. This finding supports Jorgenson's (1963)

argument that, all things being equal, higher levels of population growth in the host country increase the size of the market and sales potential, thereby attracting FDI.

5.3 CONTRIBUTION OF THE STUDY

The contribution of the study can be explained as follows. Firstly, although there are a few studies that have explored the determinants of FDI in African countries, none of them have focused on the African continent in a balanced manner. The current study addressed this issue by including four countries from each African sub-region and using the stratified judgmental sampling. This makes this study the most representative of the African continent among the few empirical studies that have investigated the determinants of FDI in Africa.

The majority of empirical studies that have explored the determinants of FDI in Africa have focused on single country studies; this makes it very difficult to generalise the results to the whole African continent. Even in the few studies that used panel data analysis methods to study the determinants of FDI in African countries, the estimation approaches used have ignored the endogeneity problem that is triggered by the existence of a bidirectional causality relationship between the dependent and the independent variables. These studies have also ignored the dynamic nature of FDI data as pointed out by Walsh and Yu (2010). The current study took into account the dynamic nature of FDI data and addressed the endogeneity problem by using the dynamic GMM approach as one of the estimation approaches.

No study on FDI determinants that the author is aware of have taken into account Matthew and Johnson's (2014) view that the impact of one macroeconomic variable on another is not instantaneous. The current study was cognisant of this view and used the lagged independent variable approach (t-1) for robustness tests.

There is overwhelming evidence in both theoretical and empirical literature that human capital and financial development separately enhance the flow of FDI into the host country. Tsaurai (2018a) noted that, as expected, the combination of human capital and stock market development enhanced FDI inflow into emerging markets. As far as this

author is aware, there is no study that has so far investigated the impact of the complementarity between human capital and financial development on FDI in African countries. The current study is the first of its kind to investigate such an aspect in the African context.

5.4 CONCLUSION AND RECOMMENDATIONS

The following variables were found to have had a significant positive influence on FDI: the lag of FDI, the complementarity between human capital and financial development, economic growth, trade openness, unemployment and population growth. The implication for policy is that African countries should be urged to implement policies geared towards enhancing economic growth, trade openness and population growth in order to attract significant FDI. This study urges African countries to ensure that policies that ensure that there is a complementarity between human capital and financial development are not only established but also implemented in order to enhance significant FDI inflows. A second implication for policy is that African countries are encouraged to use their high unemployment rates in a positive way to encourage the inflow of FDI for long-term sustainable economic growth purposes.

Natural resources, exchange rates and government final consumption expenditure were found to have a separate individual significant negative effect on FDI. This study recommends that African countries should avoid (1) overvaluing their currencies and (2) allowing excessive government participation in the economy if they intend to sustain significant FDI inflows. Since natural resources alone had a significant negative effect on FDI, in contrast to the theoretical literature, the current study urges African countries to implement policies that ensure that the availability of natural resources is complemented by other macroeconomic factors, if they intend to attract FDI and benefit from it as well. The results from the analysis of the individual influence of human capital and infrastructural development on FDI was found to be mixed in the case of African countries.

5.5 LIMITATIONS OF THE STUDY

The current study faced some constraints, which are discussed next. The researcher intended to include all African countries in the sample but could not do so as a result of the unavailability of secondary data for some countries. In the end, some African countries were excluded, some key variables were dropped and the period of study was shortened in order to circumvent the problem of a shortage of secondary data.

There is evidence in the literature that several variables that affect FDI, such as corruption, political volatility, rule of law, regulatory standards and efficiency of the government have not been investigated in the current study. There is no time series data for these variables in publicly available databases such as the World Bank, African Development Bank or International Monetary Fund. Subject to the availability of sufficient financial resources, the researcher could have purchased such crucial secondary data from private databases.

Time constraints also posed a challenge to the researcher of this study. The use of primary and secondary data may have improved the quality of the findings for policy implication purposes. In other words, comparing findings from secondary and primary data analysis might have improved the quality of the overall study. However, owing to time constraints, the researcher would not have been able to complete the dissertation in the allotted time period if mixed methods (primary and secondary data analysis) had been used.

5.6 SUGGESTIONS FOR FUTURE RESEARCH

Given the availability of appropriate data, more variables could be investigated to determine whether they have a significant influence on FDI in these African countries. Future studies could also compare results from primary data analysis and from secondary data analysis in order to ensure robustness of the findings. Moreover, future studies could conduct a similar study using different proxies for the variables that were included in this study for robustness tests reasons. If data are available, the further research could be conducted to investigate the determinants of FDI in African countries that have been excluded from the current study.

Omran and Bolbol (2003) argued that a banking sector development level below a certain threshold could not attract significant FDI. This finding from an empirical researcher is evidence that the relationship between FDI and its determinants is not linear and also that there could be a certain minimum threshold level that independent variables should reach in order to trigger significant FDI. It is hoped that the current study will encourage researchers not only to investigate determinants of FDI but also to determine the various threshold levels that independent variables must reach in order to have a significant effect on FDI in African countries.

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